STUDY REPORT

Final

General Info. No. 8

MAA-AE-18-010 TASK NO. 8520

MEP CAPACITY STUDY FOR AIRPORT CONCESSIONS AT BWI MARSHALL AIRPORT





**NOVEMBER 30, 2021** 

## **TABLE OF CONTENTS**

l.	EXE	CUTIVE SUMMARY	. 3
	A.	Introduction	.3
	B.	Study Objective/Project Approach	.3
	C.	Summary of Findings	.3
II.	STU	DY REPORT	4
	A.	Study Objective	.4
	B.	Mechanical	.4
	C.	Plumbing	.4
	D.	Electrical	.5
	E.	Information Communications Technology (ICT) & Security Systems Availability	.5
	F.	Fire Protection (Sprinkler and Fire Alarm)	.8
III.	APP	PENDICES	9

Appendix A – Exhibits

Appendix B – Design Review Comments with Responses

IV. DESIGN REPORT GENERAL INFORMATION

## I. EXECUTIVE SUMMARY

## A. Introduction

This Study Report provides an overview of the available capacity of the mechanical, plumbing, electrical, information technology and security, and fire protection systems that are currently available at the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall Airport or Airport) to support the concession program. This information will provide an understanding of the building services that are available to support future concession development.

## B. Study Objective/Project Approach

The objective of the study is to document, at a high level, the capacity available in the mechanical, plumbing, electrical, information technology and security, and fire protection systems at the BWI Marshall Airport Main Terminal and the connecting Concourses A, B, C, D and E to support the concessionaires.

The available capacities in the study are a high level view of the existing systems and provide a starting point to aid concession development. A detailed engineering analysis should be performed as part of any concessionaires development in order to confirm available capacity.

The study is based on a review of existing plans, site walk-thrus, coordination with the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA), review of existing metering data and HVAC control system data, and analysis to calculate available spare capacity.

## C. Summary of Findings

1. Mechanical: The concession spaces are generally served by variable air volume (VAV) boxes and re-heat coils connected to the existing BWI Marshall Airport air handling units (AHUs). Select concession spaces contain additional HVAC equipment to supplement the concession-specific loads. In general, the BWI Marshall Airport AHUs do not appear to have spare capacity to add VAVs for additional concession loads. The areas served by each AHU are colored coded on the drawings and the concession spaces are noted with the existing VAV or heating coil serving the space, including the maximum cubic feet per minute (CFM) of the VAV.

For new concessions and concessions with a change-in-use or added loads, it is assumed they will add in separate mechanical units to serve their load profile beyond the capacity of the respective house VAV or heating coil serving the space.

- 2. Plumbing: The existing domestic cold water, hot water, sanitary and gas mains are shown on the floor plans. Estimated spare capacities of the plumbing mains are included, except for gas. The existing plumbing piping sizes to the concession spaces, where applicable, are noted along with the estimated spare capacity available.
- 3. Electrical: The concession spaces are served by various electrical substations. The substations have available capacity to support future concessionaire development. The general areas served by the substations are colored coded on the drawings along with the peak demand for each substation and the estimated spare capacity for additional concession loads.
- 4. Information Communications Technology (ICT) and Security: ICT and Security Systems deployed at BWI Marshall Airport are typically not limited by system capacity availability but rather the Division of Airport Technology (DAT) and Office of Airport Security concessionaire use policies. Use of MDOT MAA airport owned and operated systems is limited to only MDOT MAA entities. However, ICT services are available to concessionaires operating on airport property by agreements with other service providers operating at the airport. These agreements are arranged by the concessionaire in conjunction with the Office of Commercial Management and any associated Shared Tenant Service offerings and agreements. Please see the Information Communications Technology (ICT) & Security Systems section for additional information regarding infrastructure, network, internet, cable television, telephony, mass notification, and security system details.
- 5. Fire Protection (sprinkler): The BWI Marshall Airport Main Terminal and Concourses are classified as Ordinary Hazard, Group II and are fully sprinklered. Since the existing complex is already fully sprinklered and we do not anticipate that future concession work will be at a higher hazard level, any modifications to concession spaces should not require any significant fire protection upgrades.
- 6. Fire Protection (fire alarm): The concession spaces are served by multiple fire alarm panels. The panels have capacity to support future concessionaire development. The fire alarm panel locations are shown along with colored coded drawings indicating the approximate area served. The drawings also note the spare capacity for each of the fire alarm panels.

Page 3

## II. STUDY REPORT

## A. Study Objective

To support the development and implementation of future concession program master plans at BWI Marshall Airport, this study documents at a high level, the capacity available in the mechanical, plumbing, electrical, information technology and security, and fire protection systems at the BWI Marshall Airport Main Terminal and the connecting Concourses A, B, C, D and E to support the concessionaires.

The available capacities in the study are a high level view of the existing systems and a starting point to aid concession development. A detailed engineering analysis should be performed as part of any concessionaires development in order to confirm available capacity.

The study is based on the following:

- Review of existing plans
- General visual site walk-thru to supplement information on plans; no above ceiling surveys were performed.
- Coordination with MDOT MAA –OMU and DAT
- Review of existing metering data in the web-based Schneider PowerLogic system
- Review of the existing HVAC control system in the web-based JCI Metasys system
- Analysis of existing data and calculations to determine available spare capacity

#### B. Mechanical

The overall goal of this study is to determine the capacity of the existing BWI Marshall Airport "house" HVAC systems that feed the various concession areas. The building MEP drawings were reviewed and also, where available, the concession permit drawings to determine the concession areas served by the existing AHUs and VAVs.

In general, the AHUs do not appear to have spare capacity, as the connected load appears to exceed the AHU capacity, so any further evaluations would need to be performed during a design phase with a computerized load analysis and taking into consideration possible diversity factors of the spaces served. Therefore, spare capacities are not listed for the AHUs.

The existing JCI BMS system was reviewed in order to determine the designations and capacities of the house VAVs and re-heat coils that serve the concessions areas. In general, the VAV number that serves the concession area and the maximum design CFM of the VAV is indicated on the drawings. Concession support spaces are not included in this study, therefore the AHUs, VAVs and

re-heat coils serving these spaces on the ground floor are not noted. Additional and separate mechanical equipment from the airport house systems that serve the concession spaces, such as mini-split units, dedicated roof top units and dedicated make-up air units are also noted where available. Where sizes are available, they are noted. If additional mechanical equipment is not noted for a given concession space, then based on the drawings and the BMS system reviewed there do not appear to be additional mechanical units in those areas for supplemental conditioning.

Any concessionaires that replace a VAV or re-heat coil will be required to re-balance the respective AHU air system.

For new concessions and concessions with a change-in-use or added loads, it is assumed the concessionaires will add in separate mechanical units to serve their load profile beyond the capacity of the respective house VAV and re-heat coils serving the space.

Mechanical system installation shall conform to the latest version of the MDOT MAA Planning and Engineering Guidelines and Standards (PEGS) Manual. Link to copy: https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm

## C. Plumbing

The goal of this study is to determine the spare capacity of the plumbing systems for the general areas of the Concourse and each concession space. This analysis can become quite complex if more centralized equipment is incorporated, such as lift stations, gas meters & mains, water heaters, etc. upstream/downstream of the Concourse mains. Therefore the plumbing drawings show the estimated spare capacity of the local piping mains for the entire Concourse based on the connected loads in the Concourse using the fixture units for the existing loads subtracted from the code designated fixture unit capacity of the respective pipes. Each concession area that has plumbing piping is noted with the approximate size of the existing piping and also the spare capacity of those pipes relative to the existing equipment in the spaces. Each concession space's spare capacity was calculated by subtracting the existing fixture units of equipment in the space from the code designated fixture unit capacity of the existing piping. Where a concession area does not list plumbing piping sizes or capacities, it appears that space does not currently have plumbing piping supply. Ground floor concession support spaces are not included in this study, therefore not all mains on the ground level are shown; only those associated with concession spaces.

The spare plumbing capacities are based on the capacity of the local piping systems and do not take into consideration upstream and downstream limitations. If additions are considered as part of the concessionaire development plan a more thorough engineering analysis of the plumbing system should be performed as part of the development.

The gas systems at BWI Marshall Airport are currently being studied by others to determine the capacity and pressure drop. The existing gas distribution system pressure at BWI Marshall Airport is 2 psi. It is understood that at least one of the summer boilers in Concourse A is not able to fire due to the gas system issues. One of the solutions BWI Marshall Airport is considering is to increase the gas pressure at the main utility gas train, which would be coupled with adding or modifying gas PRVs throughout the Airport to regulate the pressure to match the existing. The increase in pressure would change the spare capacity in the gas mains depending on the PRV locations, therefore the gas capacities are not listed in this study at this time. If the information is finalized, this study could be updated. For now, the gas main locations and sizes associated with the concessions in each concourse are shown.

C Pier specific sanitary issues: Any Food Concession or Capital washroom project on the C Pier should note the concourse sanitary outfalls to the street approximately 17 feet below the Lower Level concourse floor at the Vestibule Doors 10 LL. These drawings show the street outfall location for all sewage of C Pier to the existing Manhole 8T. Contract Number MAA-CO-10-004, dated January 2010 eliminated the 8 foot section of a W8 beam that was buried below the Lower Level Concourse floor just before the LL Concourse 10 Vestibule Doors. This was in addition to known obstruction(s) between column line KK and LL on Column 24 and the SIDA line. Also, Firken & Flyer at the BC Connector uses the existing sanitary main in the old C Pier, to flow to the Terminal Curbside. A vent stack in the former MAA Operations area washroom was used to discharge the Firken & Flyer restaurant into the existing sanitary main that discharges all of our C Pier.

Plumbing system installation shall conform to the latest version of the MDOT MAA Planning and Engineering Guidelines and Standards (PEGS) Manual. Link to copy: <a href="https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm">https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm</a>

## D. Electrical

The goal of the project is to identify the spare capacity available in the electrical substations in proximity to each of the concession spaces. The substations feed overlapping areas, so there is not necessarily a fixed area each substation serves, however general colored shading of the drawings show the approximate areas the substations serve. The substation locations are shown on respective level of installation and tables were created to indicate the total capacity of the substation, the existing peak demand of the substation and the calculated available capacity of the substation based on the MDOT MAA's assignment of 50% of the spare capacity to concession loads.

In order to determine the existing peak demand, the existing Schneider Electric PowerLogic web-based system was reviewed. It should be noted that the peak demand of a substation does not delineate whether the substation is single-ended from one main at the time of the peak demand. Peak demands from both mains were added together, which should be a conservative value given that the peak demands of the mains did not necessarily occur at the same time. It is assumed the capacity of the substation is based on a worse-case single-ended configuration. Finally, a number of substations do not have main meters or have meters that are not operating, therefore the upstream 15kV feeder breaker meters were reviewed. In some cases there are multiple substations without main meters that are fed off the same 15kV breaker, so the peak demands are estimated, as the load diversity between the substations could not be determined. The actual peak demands were multiplied by 125%, as per the NEC, to account for short duration and intermittent loads, since the peak demand interval for the PowerLogic system is unknown. This results in a conservative spare capacity for each substation. A majority of the peak demands occurred prior to the pandemic and any future added capacity to the substations should take into consideration the timing of the peak demands relative to reduced loads during the pandemic.

Electrical system installation shall conform to the latest version of the MDOT MAA Planning and Engineering Guidelines and Standards (PEGS) Manual. Link to copy: https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm

# E. Information Communications Technology (ICT) & Security Systems Availability

#### 1. Introduction

As previously noted, Information Communication Technology (ICT) and Security Systems deployed at BWI Marshall Airport are typically not limited by system capacity availability but rather the Division of Airport Technology (DAT) and Office of Airport Security concessionaire use policies. Use of MDOT MAA Airport systems is limited to only MDOT MAA entities. However, ICT services are available to concessionaires operating on Airport property by agreements with other services providers operating at the Airport. These agreements are arranged by the concessionaire in conjunction with the Office of Commercial Management and any associated Shared Tenant Service offerings and agreements.

There are a number of existing service providers operating at BWI Marshall Airport. Services offered include public Wi-Fi, cable/digital television, telephony, and internet connectivity. However, all facility expansions or revisions that impact public or concessionaire spaces will now require coordination with the entities occupying the space and a single service provider, SmartCity Wireless Solutions (SmartCity) of BWI Marshall Airport. Concessionaires have the option of coordinating directly with the service provider, who will then be required to work through SmartCity, or contact SmartCity for all desired ICT services.

Task 8520
MEP Capacity Study for Airport Concessions at BWI Marshall Airport

The MDOT MAA has entered into a 15-year agreement with SmartCity Wireless Solutions of BWI Marshall Airport to provide contracted technology services to concessionaires at BWI Marshall Airport. SmartCity Wireless Solutions is a team of technology companies providing the systems. Included in the team are:

- Slice Wireless
- AT&T: Cellular DAS (digital antenna system),
- Juniper Networks-owned Mist: Al-enabled Wi-Fi and Virtual Bluetooth Beacon technology,
- Clear Channel: video, secure sponsors and advertisers,
- NGEN: local network management support, and
- Moon Lighting Electrical Service: installation of the physical infrastructure to support the public services.

The SmartCity team will continue to evolve to meet the needs of the BWI Marshall Airport concessionaires. For convenience, each of the following systems notes both the existing service providers and the SmartCity Wireless Solutions for future development/redevelopment.

### 2. ICT & Security Systems

#### a. Infrastructure

Connectivity of systems requires use of various types of infrastructure cabling. The most prevalent cabling options include copper, fiber, and coaxial. Concessionaires at BWI Marshall Airport are required to provide infrastructure cabling and appropriately sized conduit to a point of demarcation. There are two primary types of demarcation locations. The first location is within a MDOT MAA Communication Room. Accessibility into these rooms is control via access control and limited to MDOT MAA staff with an approved need. The second type of demarcation is an interface box within the ceiling space near to the leased location. The demarcation location must be coordinated with and approved by DAT prior to any construction.

As previously noted, the concessionaire is responsible for cabling and conduit including faceplate/data outlet to the demarcation location. Contractors providing infrastructure installation to the MDOT MAA demarcation location include the following.

Redevelopment/Expansion Service Providers	Existing Service Providers
SmartCity Wireless Solutions (Moon Lighting Electrical Service)	Comcast

All ICT system cabling and conduit must comply with DAT PEGS Guidelines and Specifications. Conduit pathways shall be sized with a 40% fill ratio. Cabling content and

conduit size will be dependent upon the needs of the concessionaire occupying the space. Typical cabling includes all or some of the following.

- (2) 4 pair Unshielded Twisted Pair (UTP) CAT 6A Copper Cable
- (1) 6 strand Single Mode Fiber cable unless specified
- (1) RG 11 coaxial cable
- (1) E-page speaker facility
- (1) E-page shunt trip facility

MDOT MAA provides backbone cabling and pathways from the demarcation location to interface points with the external service providers.

In the event that there remains existing ICT infrastructure (cabling, conduit, slab penetrations) from a previous concession, with confirmation from MDOT MAA DAT, the new concessionaire may re-use the existing materials. However, it is the responsibility of the new concessionaire to confirm quantity, connectivity, and condition of the existing. No testing or guarantees of useability will be offered from MDOT MAA between the demarcation location and the concessionaire space.

#### b. Network

Connectivity of technology devices is oftentimes required to perform day-to-day business activities. Two common ways of connecting devices are via a wired Local Area Network (LAN) or a Wireless Data Network (WDN). While MDOT MAA DAT provides backbone cabling for connectivity, as noted above, no MDOT MAA provided LAN or WDN systems are available for use. Concessionaires operating at BWI Marshall Airport will need to contract through SmartCity Wireless for LAN or WDN services. All network related active and passive equipment will need to be located within the leased space of the concessionaire or as arranged by the service provider. Network procurement, configuration, maintenance, and support are the responsibility of the concessionaire.

#### c. Internet

Connectivity of devices to the internet requires the use of an Internet Service Provider (ISP). MDOT MAA DAT does not currently provide ISP services to concessionaires. Rather, concessionaires must individually solicit and contract an ISP for these services at BWI Marshall Airport. Currently, the following ISPs are typically used at the Airport.

Redevelopment/Expansion Service Providers	Existing Service Providers
<ul> <li>SmartCity Wireless Solutions</li> </ul>	Verizon
	Comcast
	Fiberlite
	• AT&T
	Sprint

Contract and service issues occurring will be addressed by the concessionaire with the ISP. Should the issue be determined to be caused by MDOT MAA infrastructure beyond the demarcation point, DAT will diagnose and repair the problem.

#### d. Cable Television (CATV)

Availability of Cable Television (CATV) may be desired by concessionaires for the entertainment of their patrons. MDOT MAA DAT does not currently provide cable services to concessionaires. However, concessionaires may individually solicit and contract a CATV service for their leased space at BWI Marshall Airport. The concessionaire will be responsible for the procurement, installation, and support of all devices used to display CATV. CATV services may be contracted through the following providers.

Redevelopment/Expansion Service Providers	Existing Service Providers
SmartCity Wireless Solutions (Clear Channel)	Comcast

Contract and service issues occurring will be addressed by the concessionaire with the CATV provider. Should the issue be determined to be caused by MDOT MAA infrastructure beyond the demarcation point, DAT will diagnose and repair the problem.

#### e. Telephony

Voice communications via a conventional (non-cellular) telephone may be desired by concessionaires. MDOT MAA DAT does not currently provide telephony services to concessionaires. Rather, concessionaires must individually solicit and contract service provider. The following providers are typically used at the Airport.

Redevelopment/Expansion Service Providers	Existing Service Providers
SmartCity Wireless Solutions (Voice over IP service)	<ul><li>Verizon</li><li>AT&amp;T</li><li>Comcast</li></ul>
	Other arranged providers

Contract and service issues occurring will be addressed by the concessionaire with the service provider. Should the issue be determined to be caused by MDOT MAA infrastructure beyond the demarcation point, DAT will diagnose and repair the problem.

#### f. Mass Notification

In the unfortunate event of an emergency, the ability to provide clear and timely direction is critically needed. The MDOT MAA Mass Notification System may be required to be extended into a concessionaire's leased space. It is the responsibility of the concessionaire to provide MDOT MAA system compatible evacuation speakers and shunts via e-Page cabling installed to the demarcation location.

Only speaker and shunts will be located in the concessionaire space. All other mass notification system equipment is housed within MDOT MAA communication rooms. System maintenance, upgrades, and support of the system is the responsibility of MDOT MAA DAT. Concessionaire is responsibly only for speakers and shunts within their leased space.

#### g. Security

The MDOT MAA Office of Airport Security operates various security-related systems per federal regulations and Airport security requirements. Therefore, the concessionaire and their employees will be required to apply for the appropriate designation of badge (dependent upon location of leased space) as needed to access the location of the leased space.

The MDOT MAA Controlled Access Security System (CASS) is not available for concessionaire operational purposes within leased spaces at any location within the terminal or concourses. Should there be a need to access spaces currently under the monitoring and control of the CASS system, the concessionaire will be required to coordinate with the Office of Airport Security for the assignment of access rights. Should the fit-out of a concessionaire require reconfiguration or addition of portals across the airport designated security lines, approval and coordination with the Office of Airport Security is required. The concessionaire will be responsible provide any operational control into or within the concessionaire lease space as part of the space fit-out. This may include a standalone security system, key, or cipher lock style devices.

The MDOT MAA also maintains Closed Circuit Television (CCTV) cameras throughout the Airport. These cameras are primarily for security operational purposes and should not be considered part of a surveillance system required for an individual concessionaire. Generally, video from the Digital Video Management System (DVMS) is not available to the public, including the concessionaires. Any CCTV cameras and associated recording needed for operational purposes by a concessionaire should be provided by the concessionaire as part of the space fit-out.

Provision of any concessionaire required duress buttons or burglar systems for operational purposes within leased spaces should be provided by the concessionaire as part of the space fit-out.

## F. Fire Protection (Sprinkler and Fire Alarm)

#### 1. Sprinkler:

The BWI Marshall Airport Main Terminal and Concourses are classified as Ordinary Hazard, Group II and are fully sprinklered. Since the existing complex is already fully sprinklered and we do not anticipate that future concession work will be at a higher hazard, any modifications to concession spaces should not require any significant fire protection upgrades. We anticipate that the work would include modifying the sprinkler branch piping and head locations / types to match up with the concession layout and reflected ceiling plan.

The existing plans available on AirPortal contained minimal information regarding the sprinkler systems. Shop drawings of the existing sprinkler systems are not available AirPortal and have been requested from MDOT MAA. As this information becomes available the plans will be updated to include sprinkler mains.

Sprinkler system installation shall conform to the latest version of the MDOT MAA Planning and Engineering Guidelines and Standards (PEGS) Manual. Link to copy: https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm

#### 2. Fire Alarm:

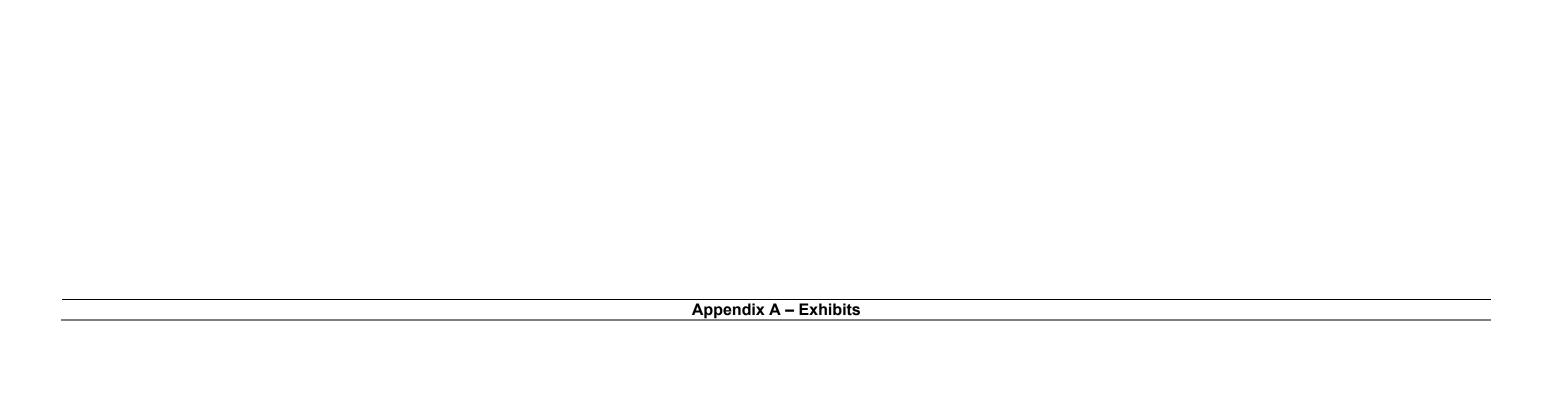
The primary fire alarm system serving BWI Marshall Airport is the Honeywell EBI (Enterprise Building Integration) System. The signals report to a Honeywell EBI Graphics System located in the BWI Marshall Airport Dispatch Center. The Fire Alarm Panel locations are noted on the electrical plan sheets. The available capacity of the fire alarm systems as of August 2021 is detailed in the drawings and is based on information provided by Honeywell. It appears there is more than sufficient capacity in the fire alarm systems for concession additions or renovations.

The following is a summary of the FAP locations and types:

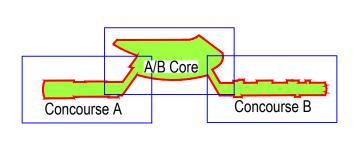
Panel Type	Panel Location
XLS3000	Pier A \ Elect Rm-A153
XLS3000	Term A-B \ Pier A - Fire Cmnd-AT045
XLS1000	Pier B Lwr Lvl Electric Rm-B105
XLS1000	Pier Bx Lwr Lvl Fire Cmnd Rm-B145
XLS1000	Pier C Lwr Lvl Fire - Mech Rm-C141 C9
XLS1000	South Terminal - Fire Cmnd Rm-ST105
XLS1000	MDOT MAA-OPS Lvl 3 Elect Rm-333
XLS1000	Pier Dx Lwr Lvl Elect. Sub-Dx124
XLS1000	Pier E Lwr Lvl Fire Cmnd Rm-E1802
XLS1000	Pier E Sterile Corr Fire Cmnd Rm-E2106A
XLS1000	NTE Lwr Lvl Fire Cmnd Rm-NTE196A
XLS1000	North Term Lwr Lvl Telephone Rm-NT109

Fire alarm installation shall conform to the latest version of the MDOT MAA Planning and Engineering Guidelines and Standards (PEGS) Manual. Link to copy: <a href="https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm">https://public.airportal.maa.maryland.gov/pegs/#t=Home%2FHome.htm</a>

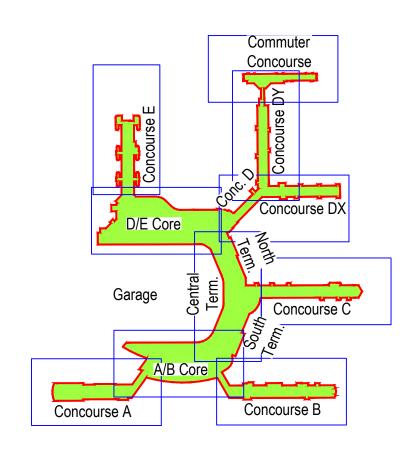
## III. APPENDICES



# Airport Overview Plans

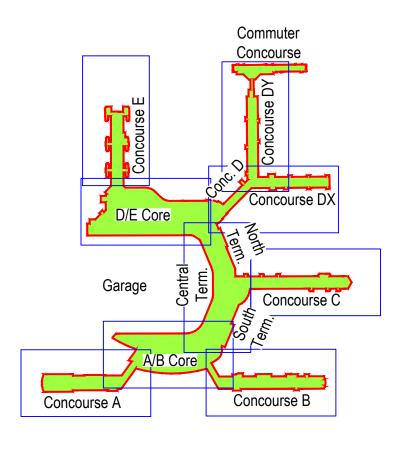


GROUND LEVEL (LEVEL 1A)



LOWER LEVEL (LEVEL 1)

NOT TO SCALE

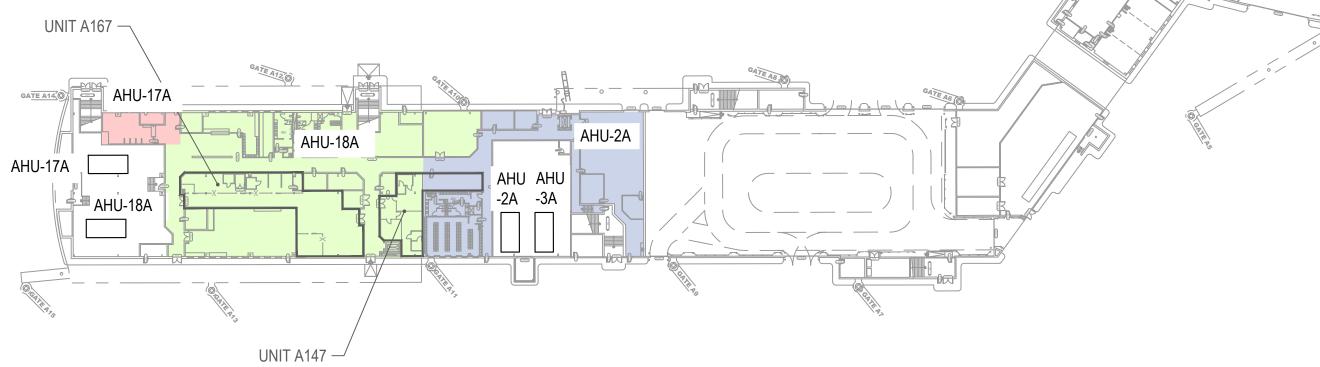


UPPER LEVEL (LEVEL 2)





# Concourse A - Ground Level (Level 1a) UNIT A1035A UNIT A167

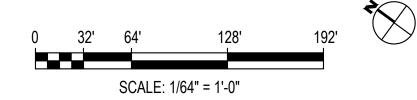


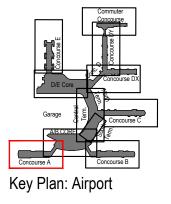




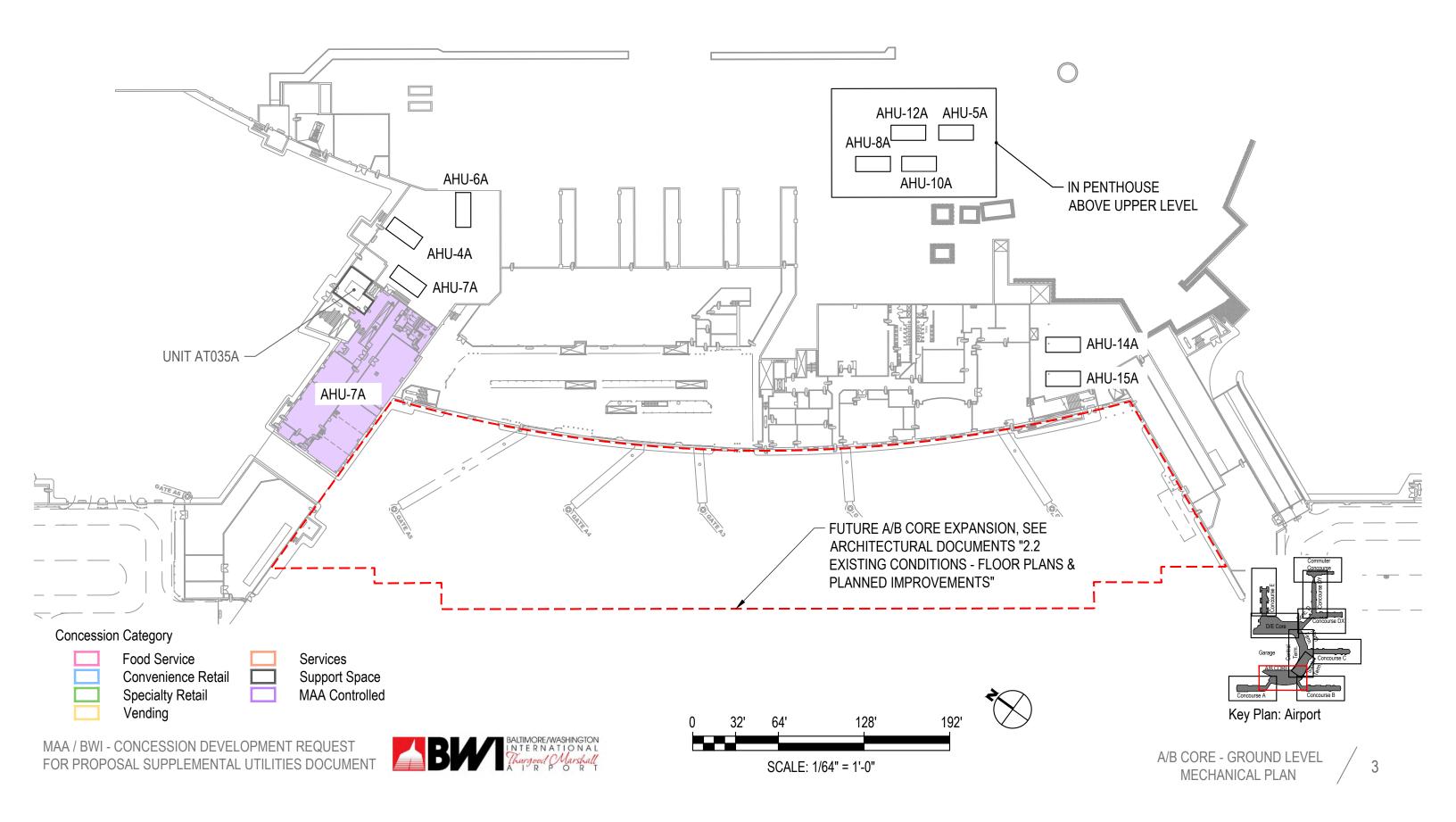
Services
Support Space
MAA Controlled

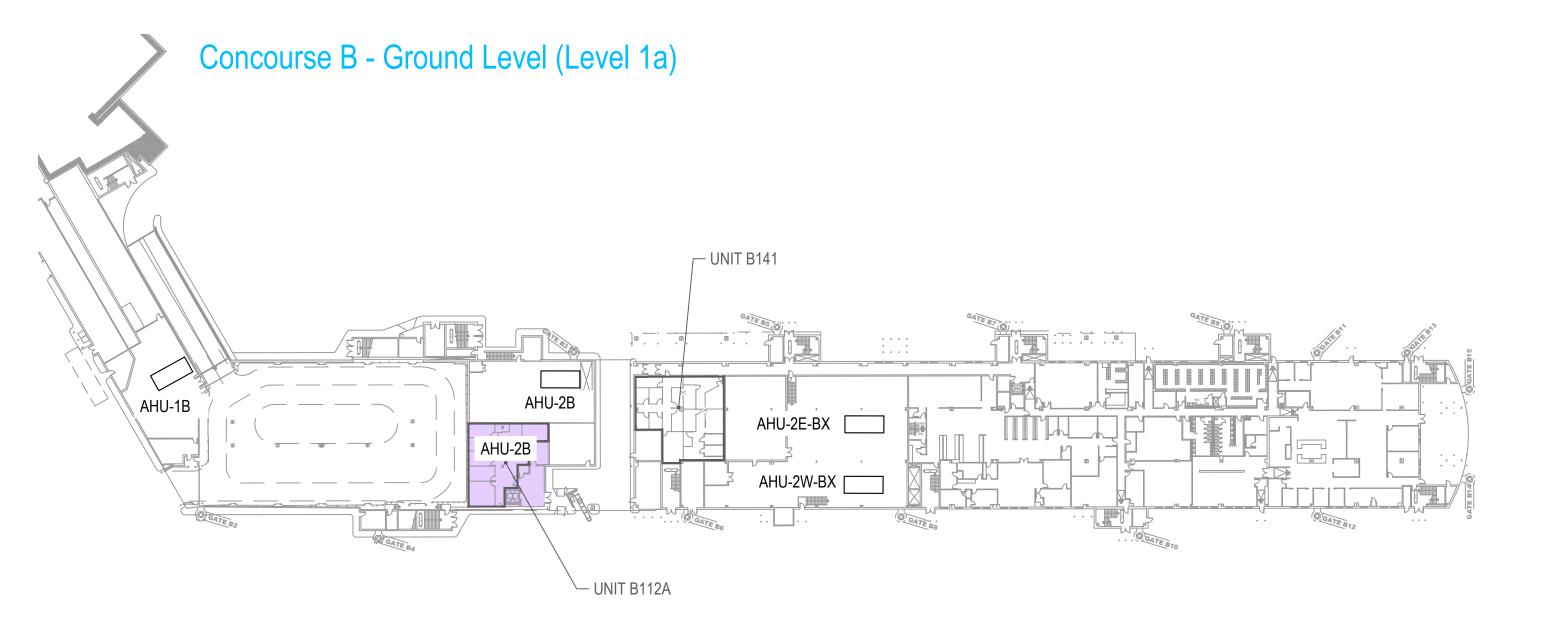




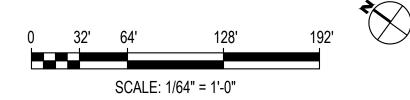


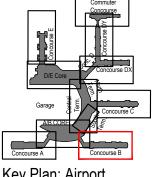
# A/B Core - Ground Level (Level 1a)

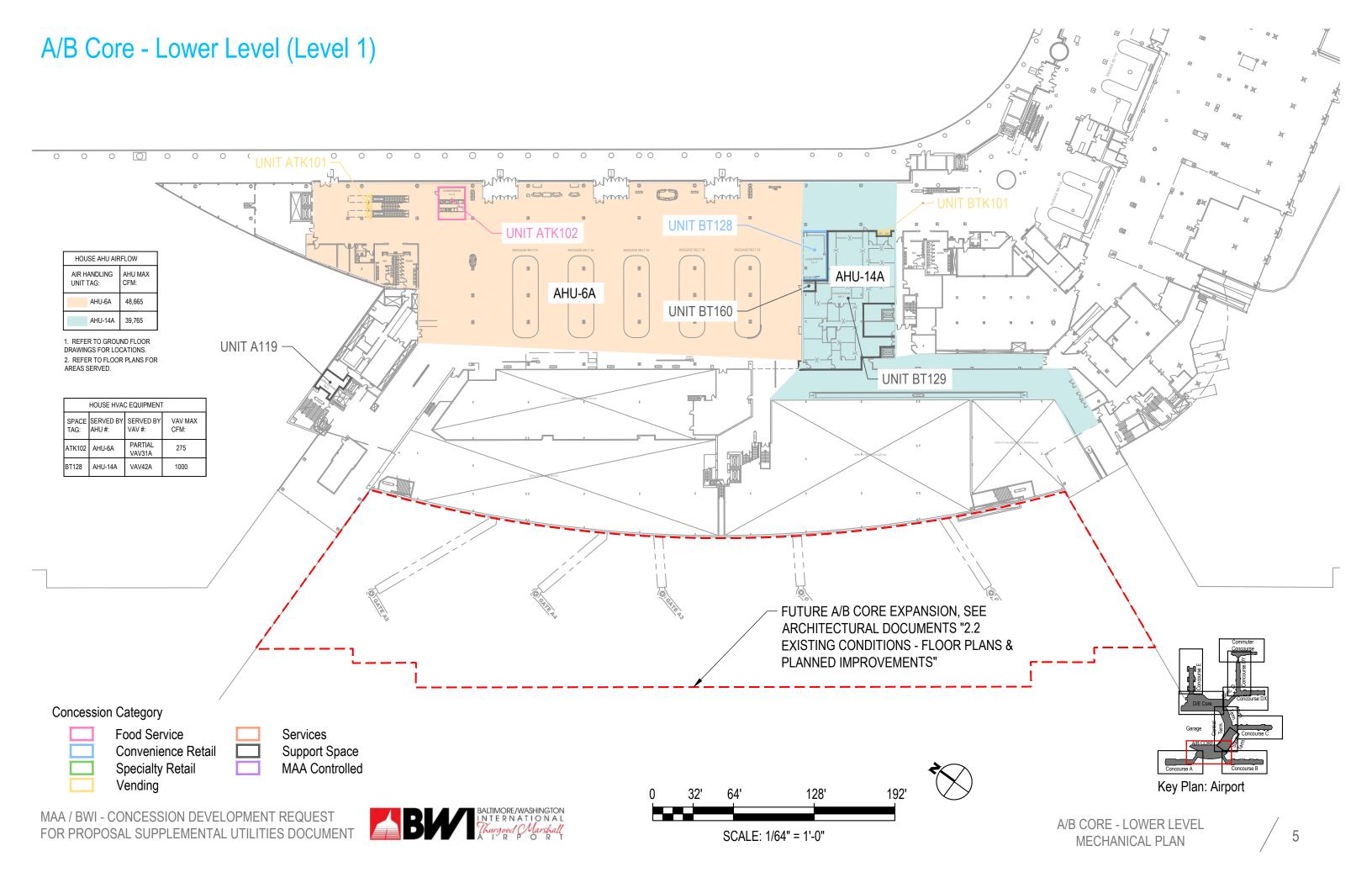


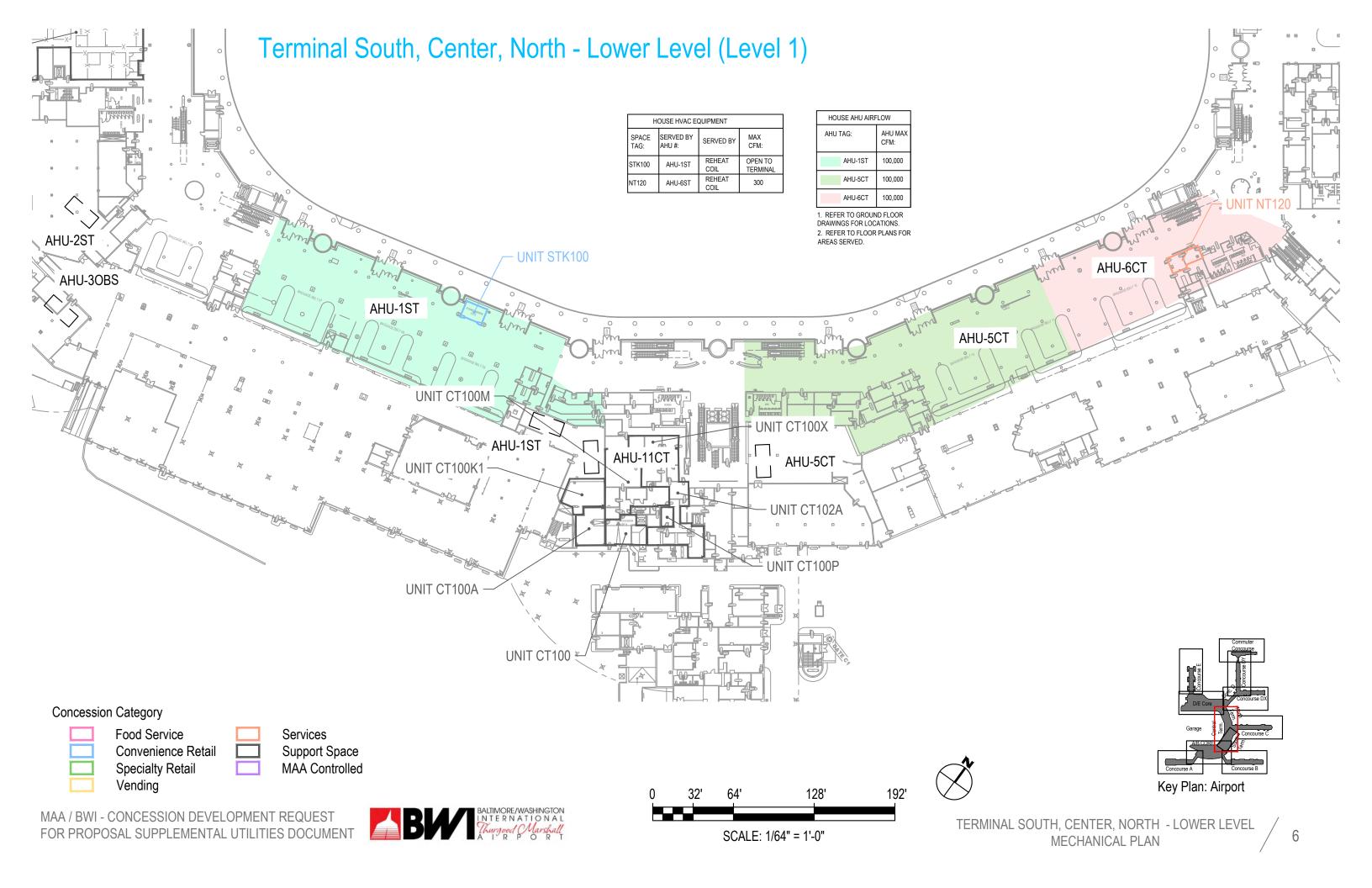




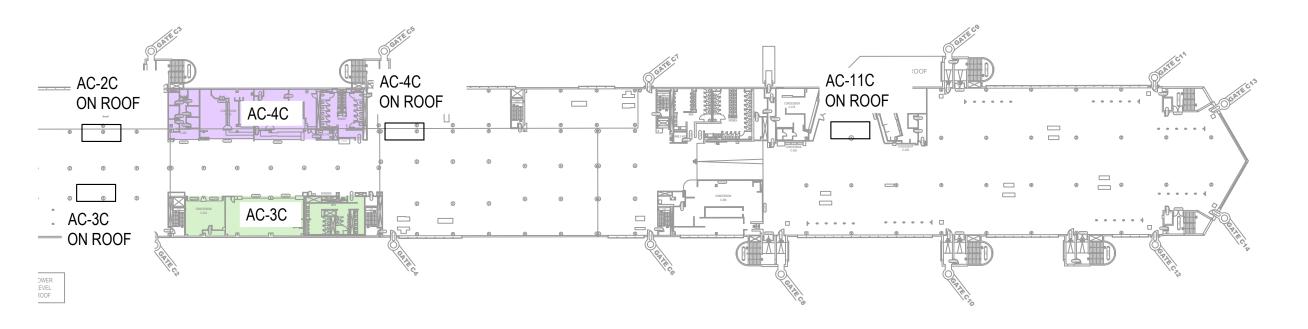








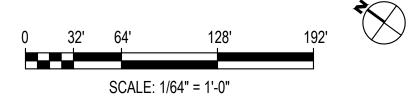
# Concourse C - Lower Level (Level 1)

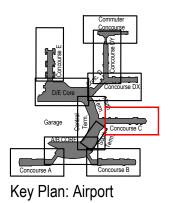


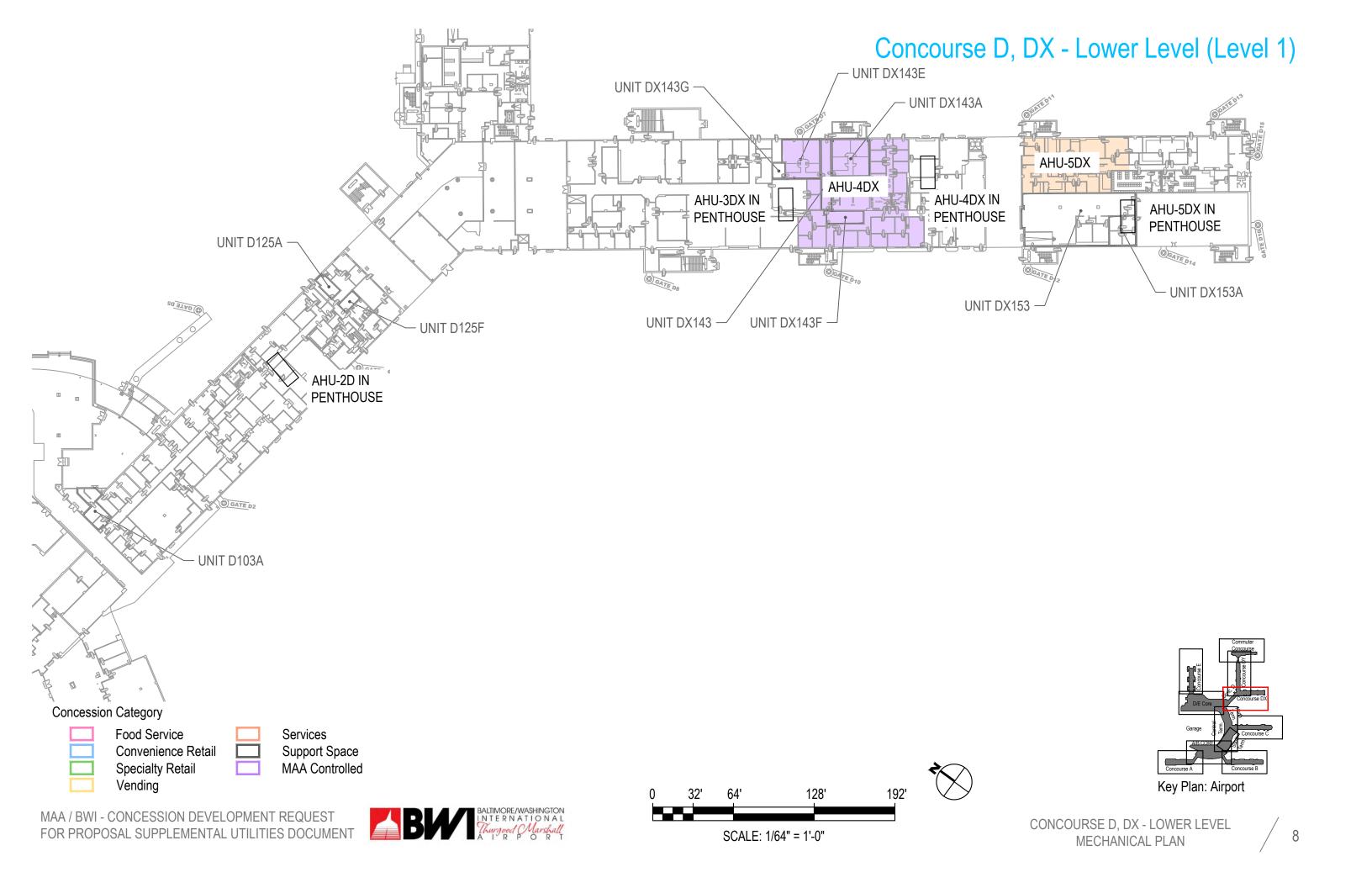


MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT

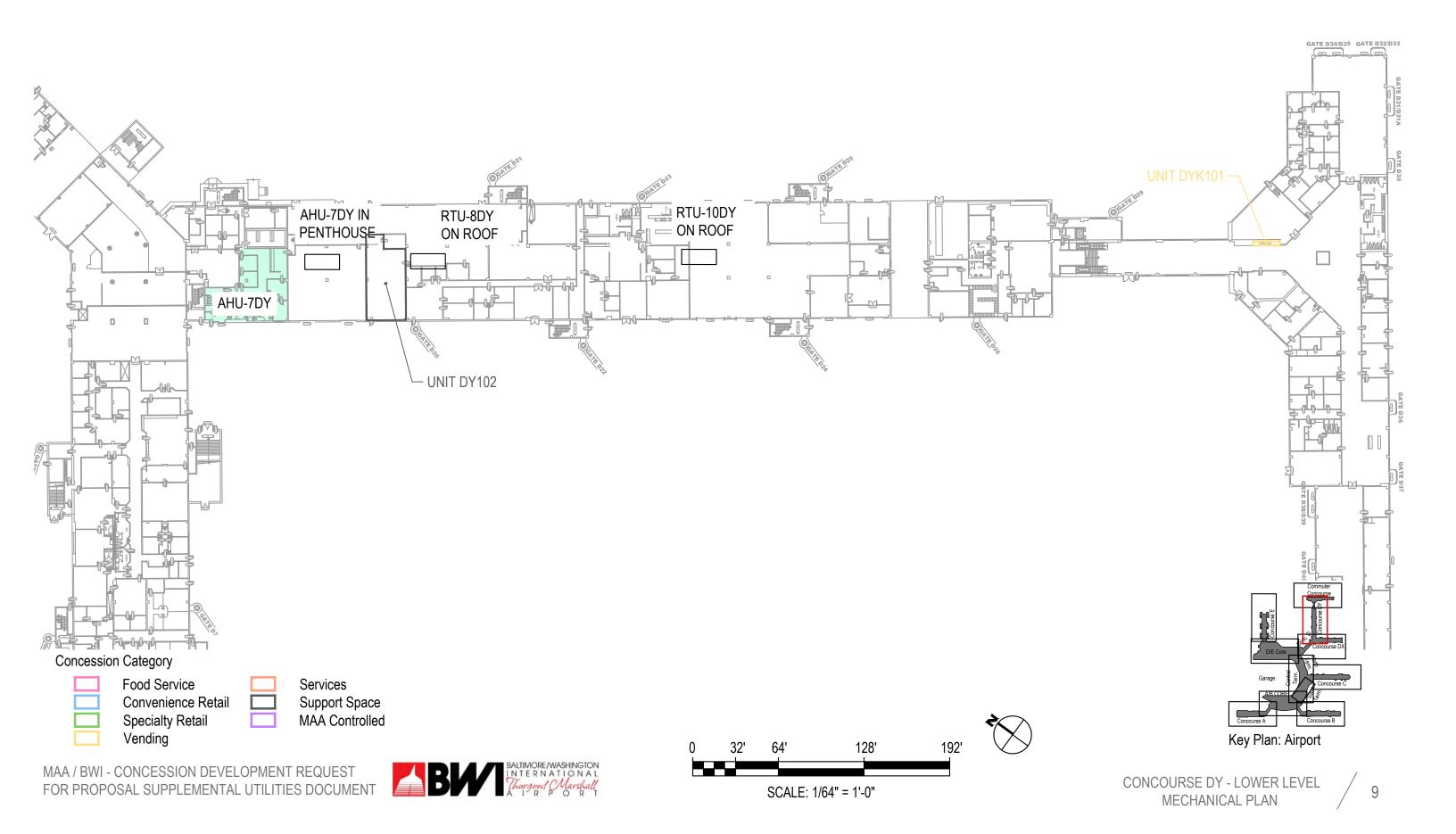




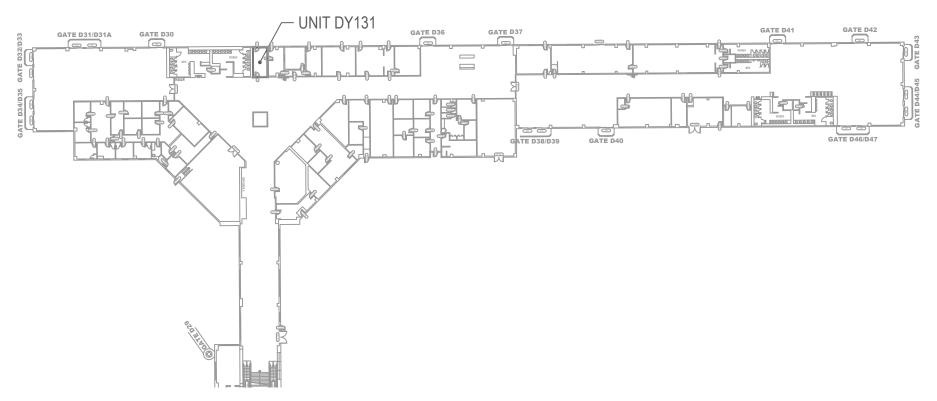




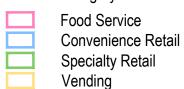
# Concourse DY - Lower Level (Level 1)



# Commuter Concourse D - Lower Level (Level 1)



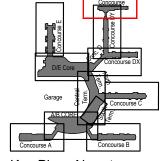
## Concession Category

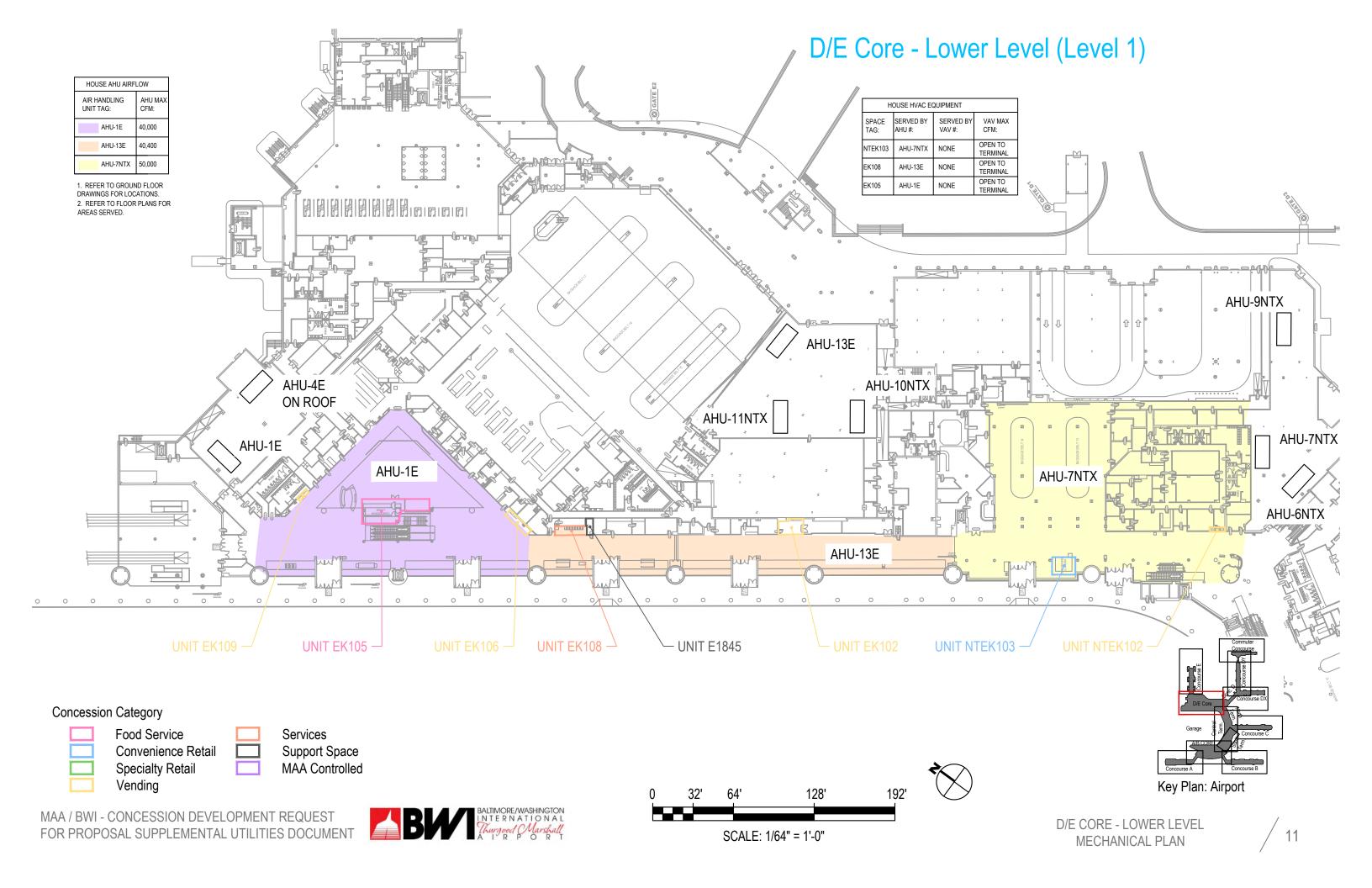


Services
Support Space
MAA Controlled

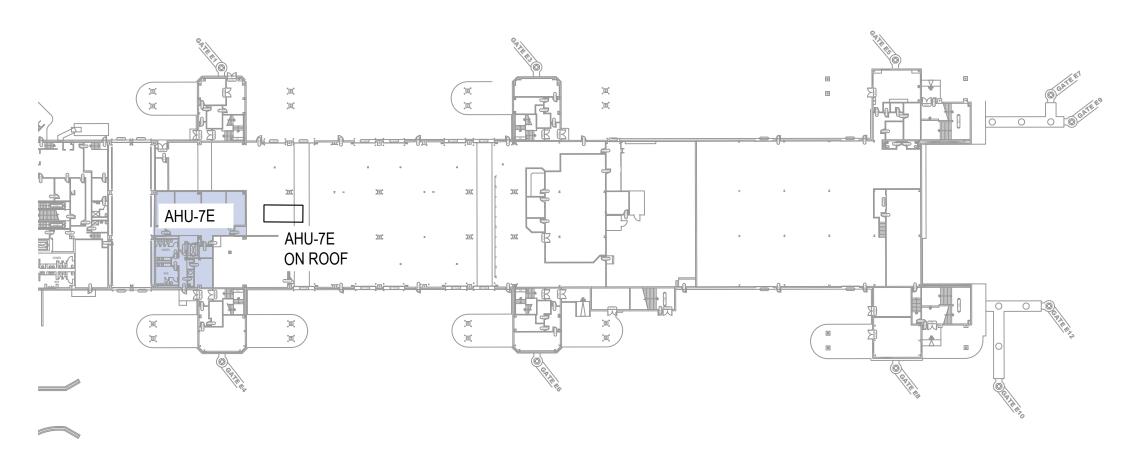




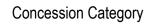




# Concourse E - Lower Level (Level 1)



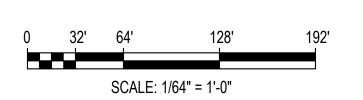
TE E2

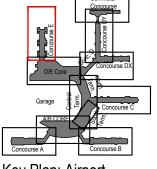




Services Support Space MAA Controlled





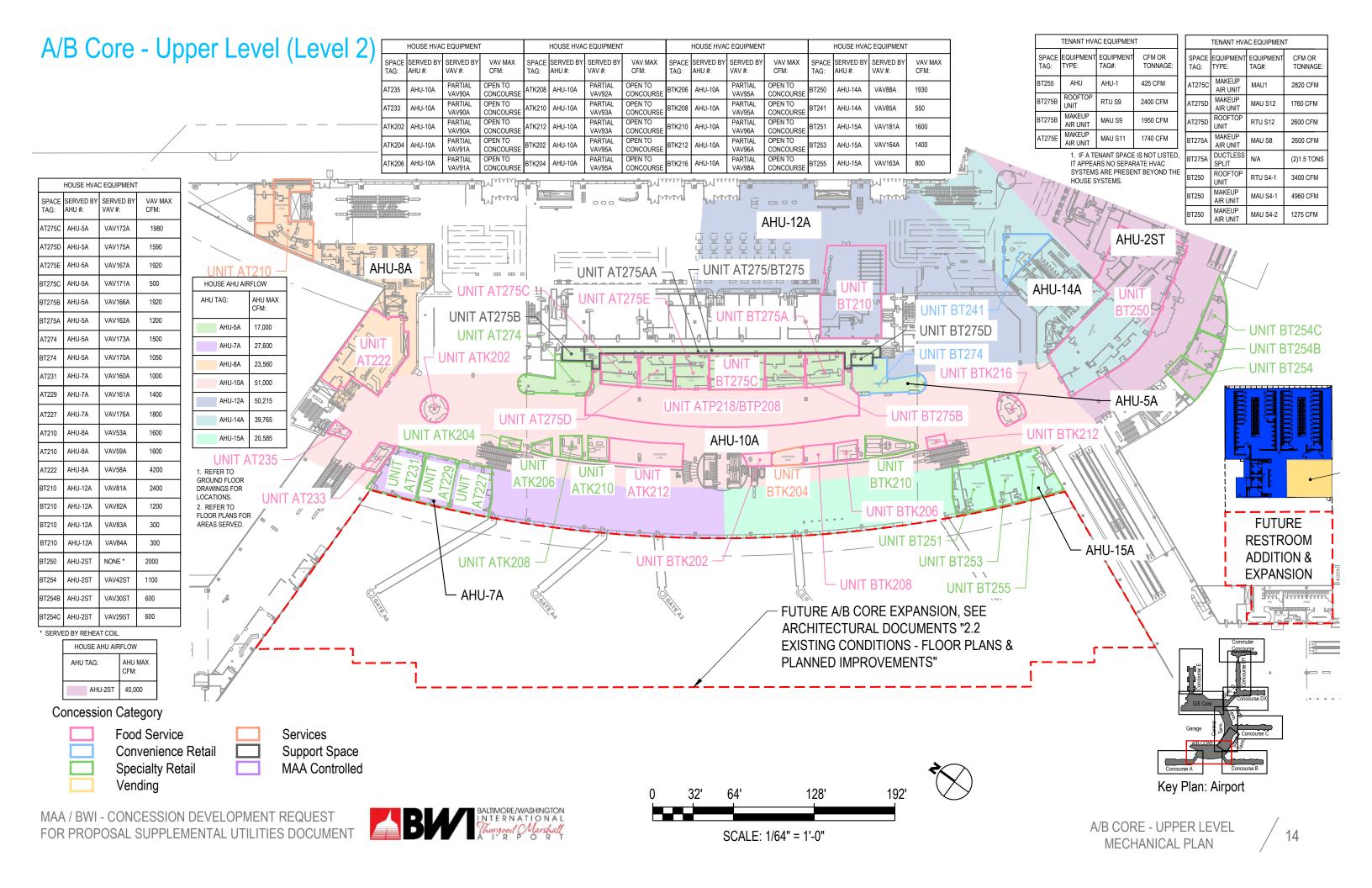


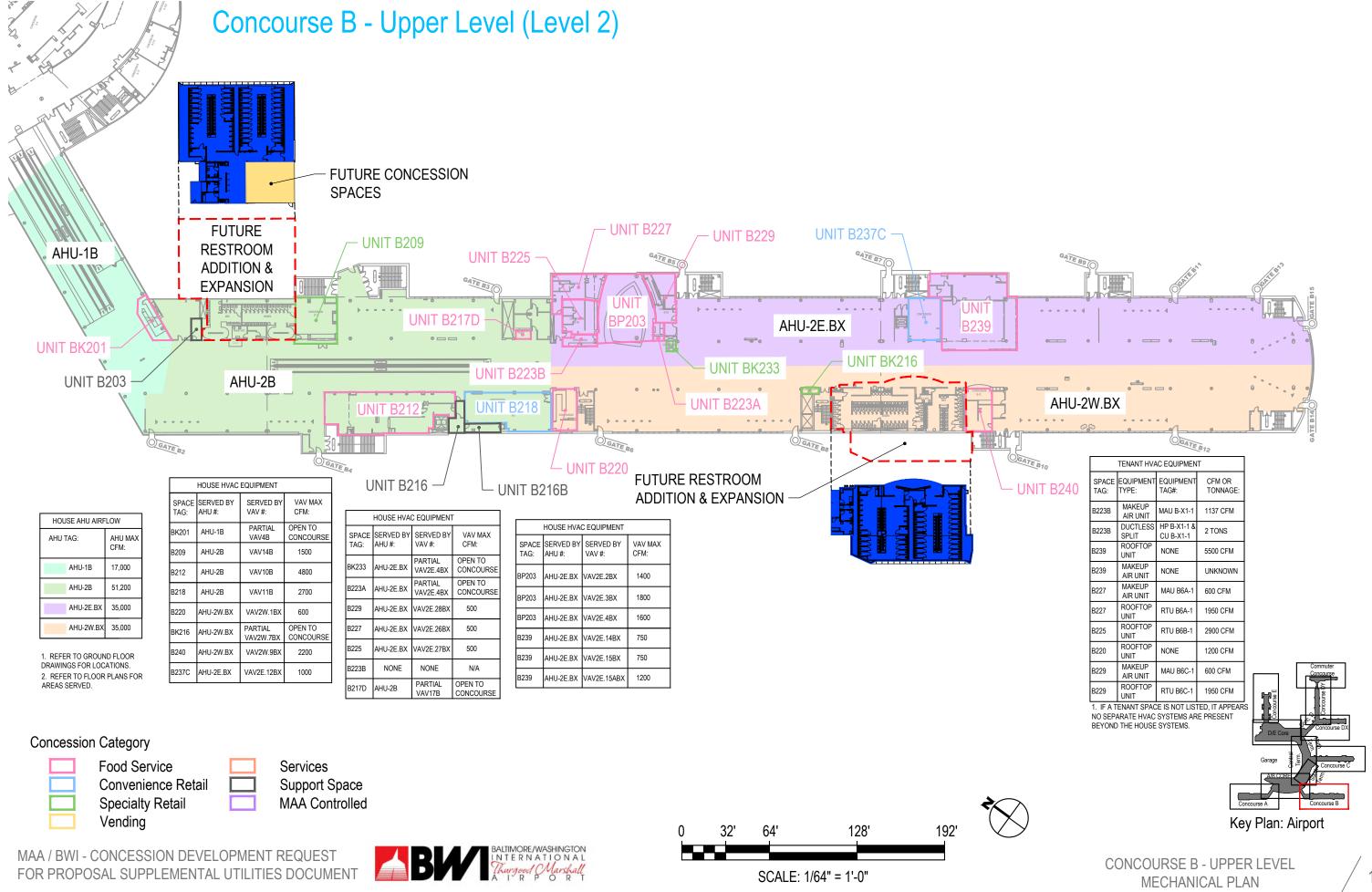
#### UNII AIZI Concourse A - Upper Level (Level 2) UNIT A212C -UNIT A212B -**UNIT AK201** UNIT A212A AHU-17A AHU-2A UNIT A211B HOUSE HVAC EQUIPMENT SPACE SERVED BY SERVED BY VAV #: UNIT A211B VAV MAX **UNIT A204** OPEN TO CONCOURSE MULTIPLE AK204 AHU-17A AHU-3A AHU-18A A239 AHU-18A VAV18.17A 2000 A239 AHU-18A VAV18.30A 2000 - UNIT AP206 UNIT A211A A231 AHU-18A VAV18.19A 860 ─ UNIT A231 A212A AHU-2A VAV174A 400 TENANT HVAC EQUIPMENT AHU-2A VAV179A SPACE EQUIPMENT EQUIPMENT HOUSE AHU AIRFLOW AHU-2A 1200 MAKEUP AIR UNIT AIR HANDLING A239 4165 CFM A212C AHU-3A 1200 DUCTLESS SPLIT 3 TONS AP206 36,080 2400 AHU-3A AHU-2A DUCTLESS SPLIT 1.5 TONS AHU-3A 38,765 AHU-3A VAV10A 1480 SUPPLY FAN 2515 CFM AHU-4A 27,600 A211B VAV14A 1600 AHU-3A A212B DUCTLESS SPLIT 1.25 TONS AHU-17A 30,275 A204 VAV21A 375 AHU-3A .75 TONS AHU-18A SPLIT AHU-4A A212B DUCTLESS SPLIT REFER TO GROUND FLOOR DRAWINGS FOR LOCATIONS. .75 TONS OPEN TO AHU-4A 1. IF A TENANT SPACE IS NOT LISTED. 2. REFER TO FLOOR PLANS FOR IT APPEARS NO SEPARATE HVAC SYSTEMS ARE PRESENT BEYOND THE **Concession Category** Food Service Services Support Space Convenience Retail Specialty Retail MAA Controlled

Vending



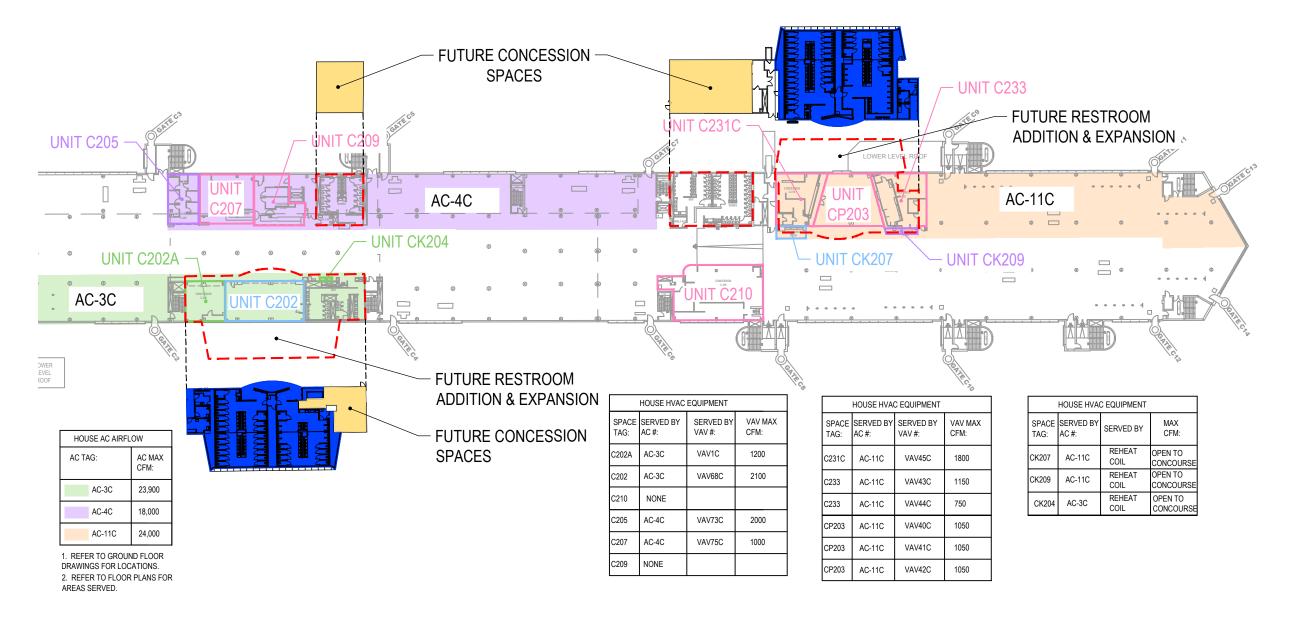






#### Terminal South, Center, North - Upper Level (Level 2) HOUSE AHU AIRFLOW TENANT HVAC EQUIPMENT AHU MAX SPACE EQUIPMENT EQUIPMENT AHU-1ST 100,000 HOUSE HVAC EQUIPMENT MAKFUP AIR UNIT AHU-5CT 100,000 SPACE SERVED BY MAX SPACE SERVED BY SERVED BY VAV MAX SPACE SERVED BY SERVED BY VAV MAX SERVED BY TAG: MAKEUP MAU BC-1 700 CFM AHU-11CT 30,000 AIR UNIT REHEAT OPEN TO C200M AHU-11CT VAV28ST 1300 MAKEUP CTK203 AHU-5CT VAV39ST 1300 2570 CFM AHU-1ST COIL AHU-2C AIR UNIT REHEAT C200D AHU-11CT VAV41ST 2900 AHU-5CT VAV40ST 1300 AHU-1ST 1. IF A TENANT SPACE IS NOT LISTED, IT APPEARS AHU-6CT 100,000 NO SEPARATE HVAC SYSTEMS ARE PRESENT REHEAT CT201 AHU-5CT 1200 C200D AHU-11CT 2900 1300 AHU-1ST VAV36ST AHU-2ST 40,000 REHEAT NT243 AHU-5CT 500 C200D AHU-11CT VAV24ST 1100 AHU-1ST 1. REFER TO GROUND FLOOR REHEAT COIL NT237 C200E1 AHU-11CT 2000 AHU-5CT 500 VAV33ST DRAWINGS FOR LOCATIONS. 2. REFER TO FLOOR PLANS FOR 300 500 C200G AHU-11CT VAV26ST AHU-6CT C200F AHU-11CT VAV27ST 1300 AHU-2C VAV50C AHU-5CT **UNIT CTK203** AHU-1ST STP207 UNIT CT203 - UNIT NT235 UNIT ST205A UNIT NT243 UNIT ST200E AHU-11CT UNIT NT239 UNIT ST200G UNIT C205B UNIT C200F **Concession Category** Food Service Services Support Space Convenience Retail Specialty Retail MAA Controlled Vending Key Plan: Airport 128' MAA / BWI - CONCESSION DEVELOPMENT REQUEST TERMINAL SOUTH, CENTER, NORTH - UPPER LEVEL FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT SCALE: 1/64" = 1'-0" MECHANICAL PLAN

# Concourse C - Upper Level (Level 2)



TENANT HVAC EQUIPMENT			
SPACE TAG:	EQUIPMENT TYPE:	EQUIPMENT TAG#:	CFM OR TONNAGE:
C210	MAKEUP AIR UNIT	MAU-1	2578 CFM
C210	ROOFTOP UNIT	RTU-1	2600 CFM
C210	ROOFTOP UNIT	RTU-2	2600 CFM
C207	MAKEUP AIR UNIT	MUF1	2046
C209	ROOFTOP UNIT	RTU 2-1	2620 CFM

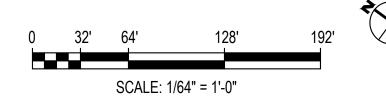
1. IF A TENANT SPACE IS NOT LISTED, IT APPEARS NO SEPARATE HVAC SYSTEMS ARE PRESENT BEYOND THE HOUSE SYSTEMS.

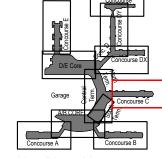
## **Concession Category**

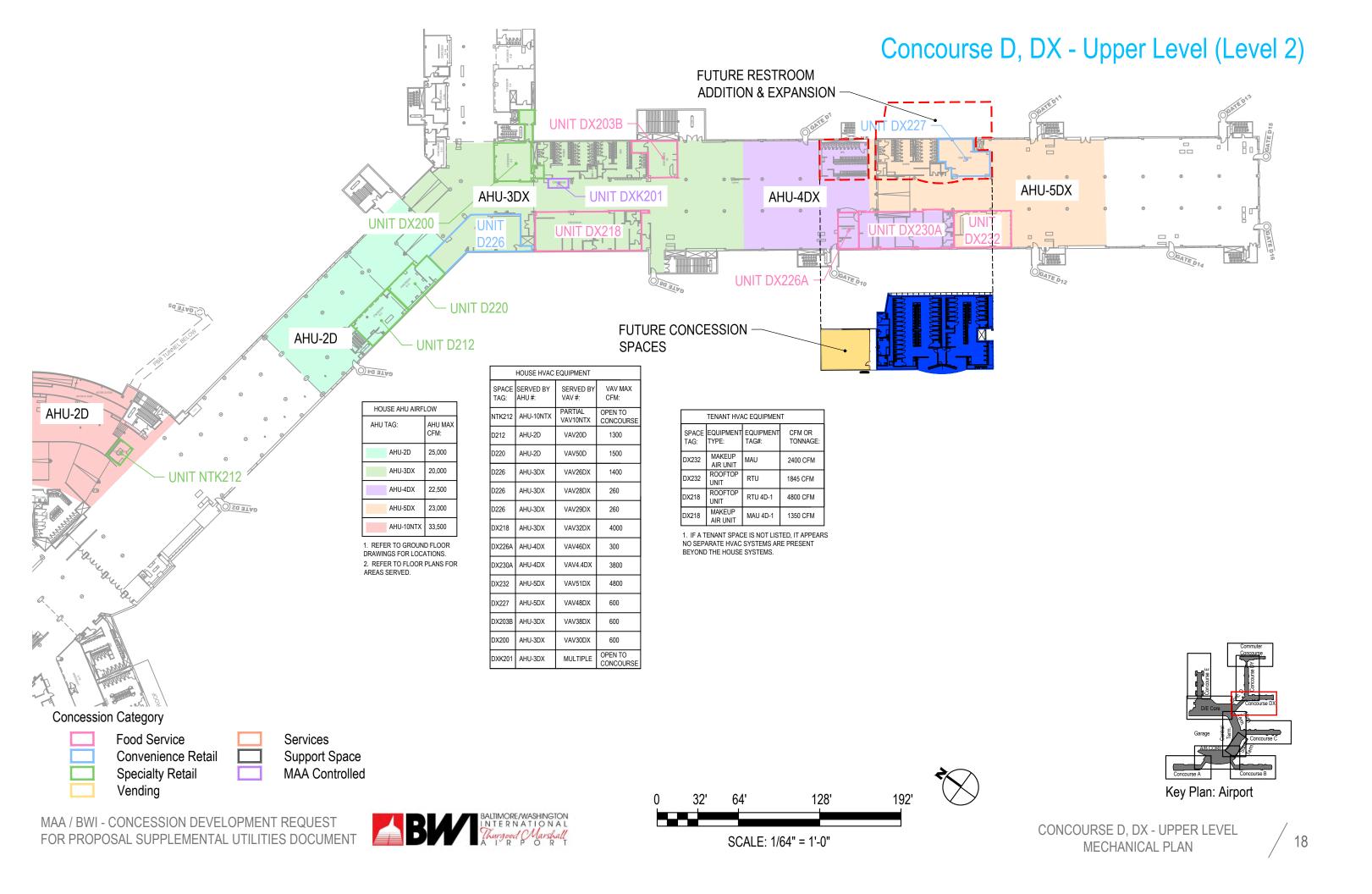


Services Support Space MAA Controlled

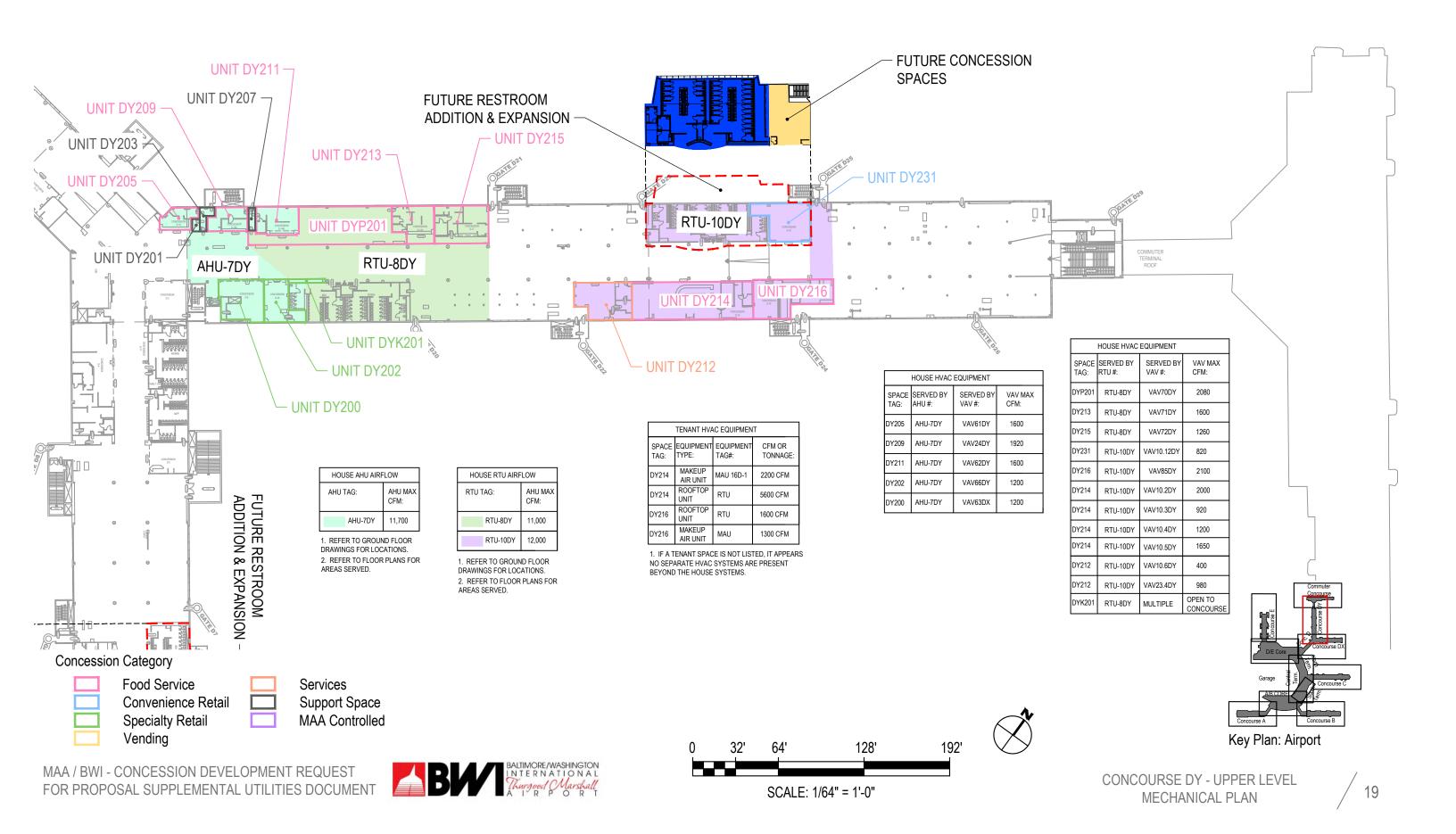
MAA / BWI - CONCESSION DEVELOPMENT REQUEST

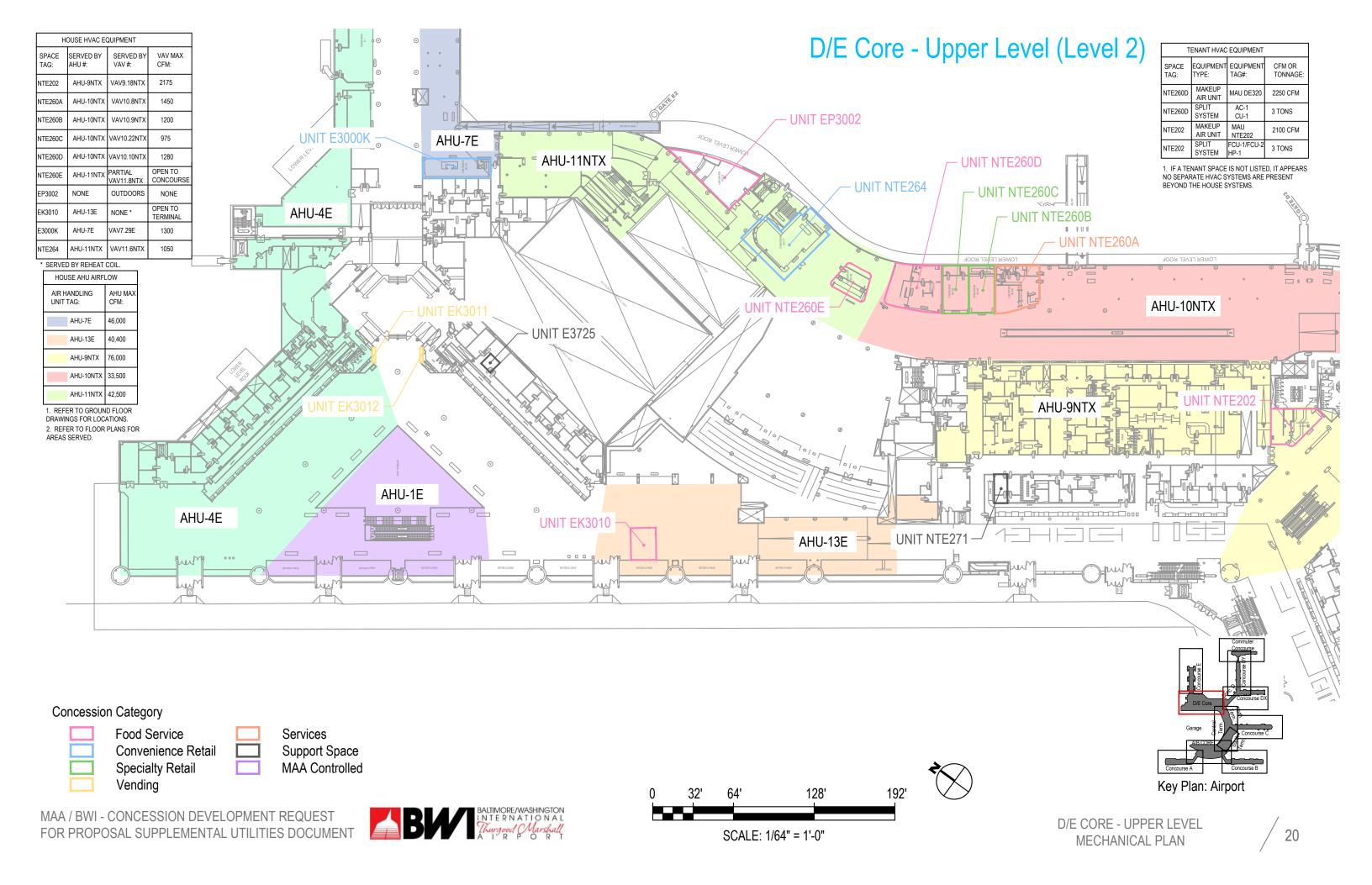




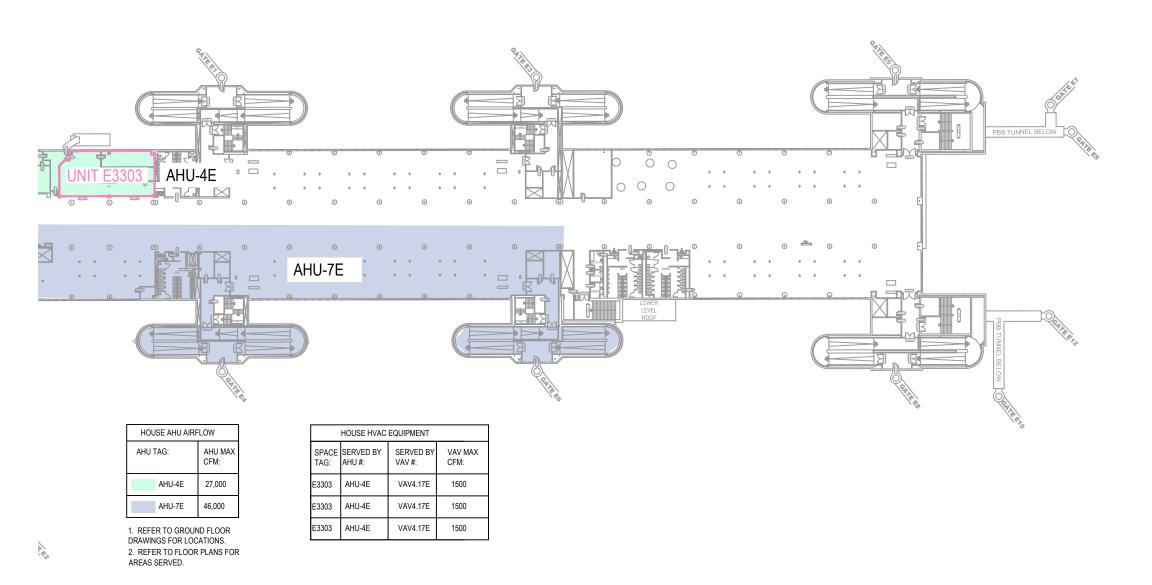


# Concourse DY - Upper Level (Level 2)





# Concourse E - Upper Level (Level 2)



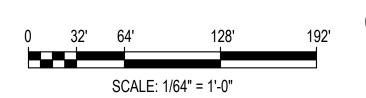
## **Concession Category**

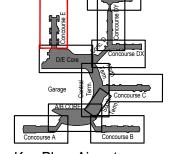
moodium danagany		
	Food Service	
	Convenience Retail	
	Specialty Retail	
	Vending	

Services
Support Space
MAA Controlled

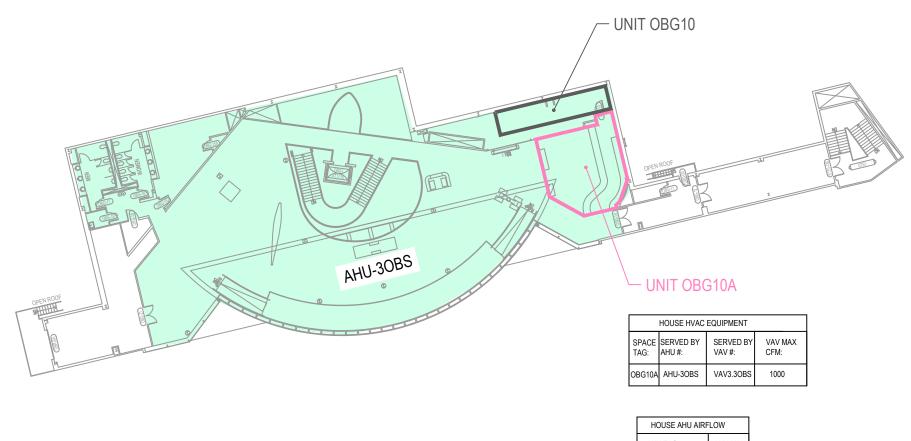
MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT







# Terminal Observation Gallery - Upper Level Mezzanine



HOUSE AHU AIRF	LOW
AHU TAG:	AHU MAX CFM:
AHU-3OBS	8000

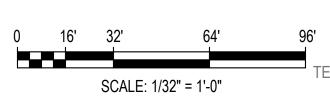
REFER TO GROUND FLOOR DRAWINGS FOR LOCATIONS.
 REFER TO FLOOR PLANS FOR AREAS SERVED.

## Concession Category

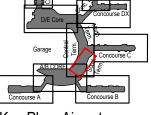
Food Service
Convenience Retail
Specialty Retail
Vending

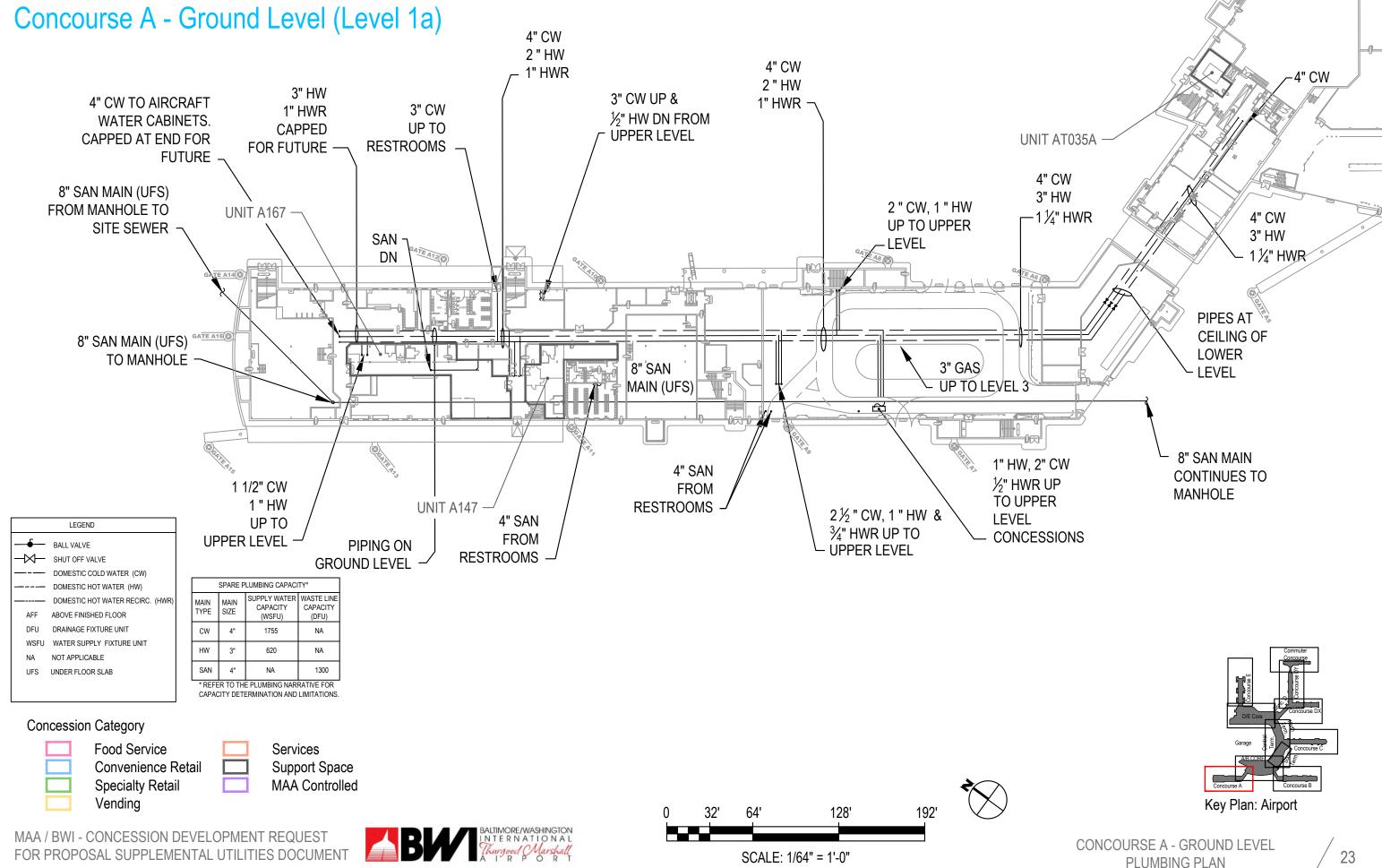
Services
Support Space
MAA Controlled

BALTIMORE/WASHINGTON IN TERNATION A LA THOMAS A LA PORTA TO THE TRANSPORTATION OF THE PORTA TO T

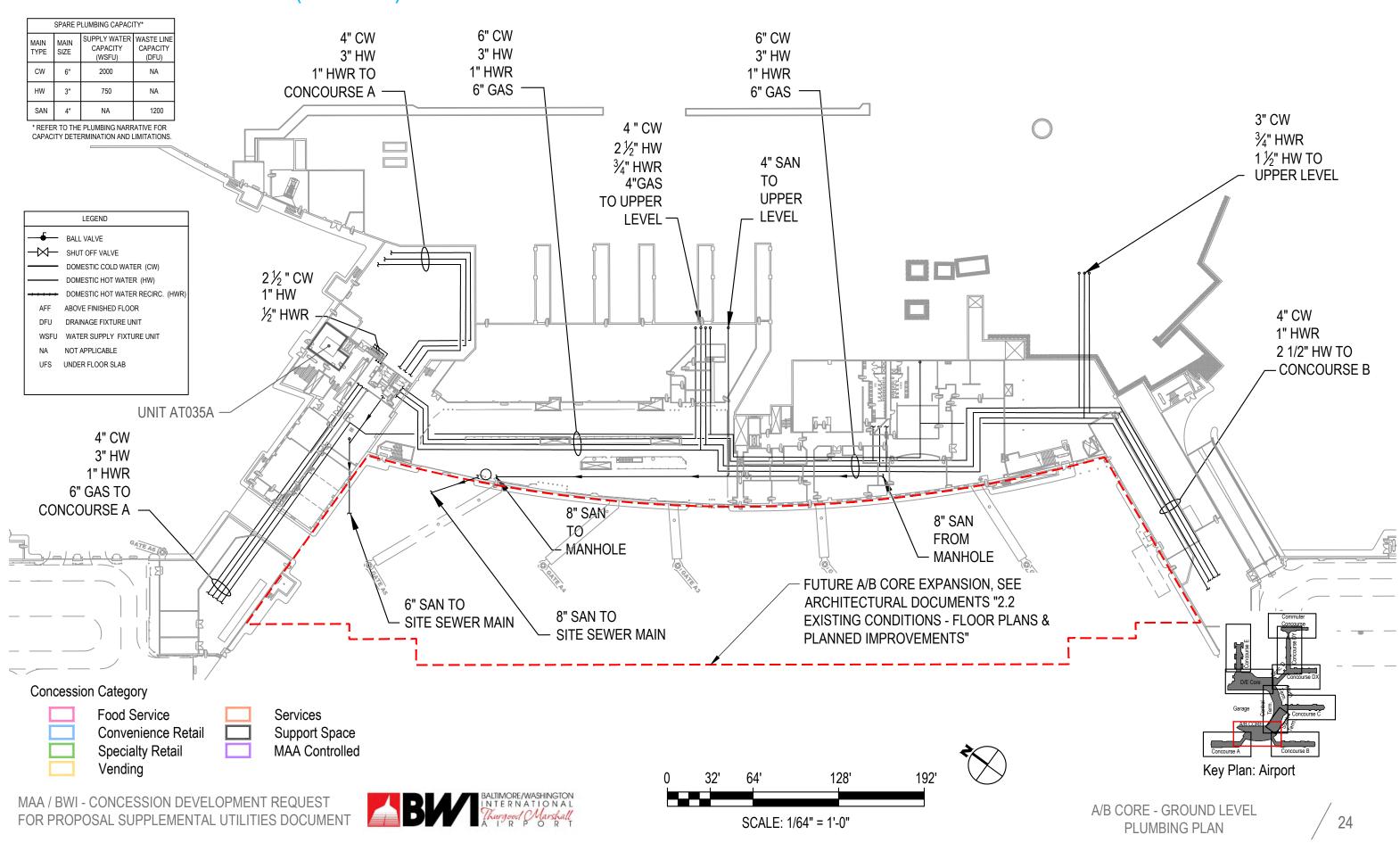


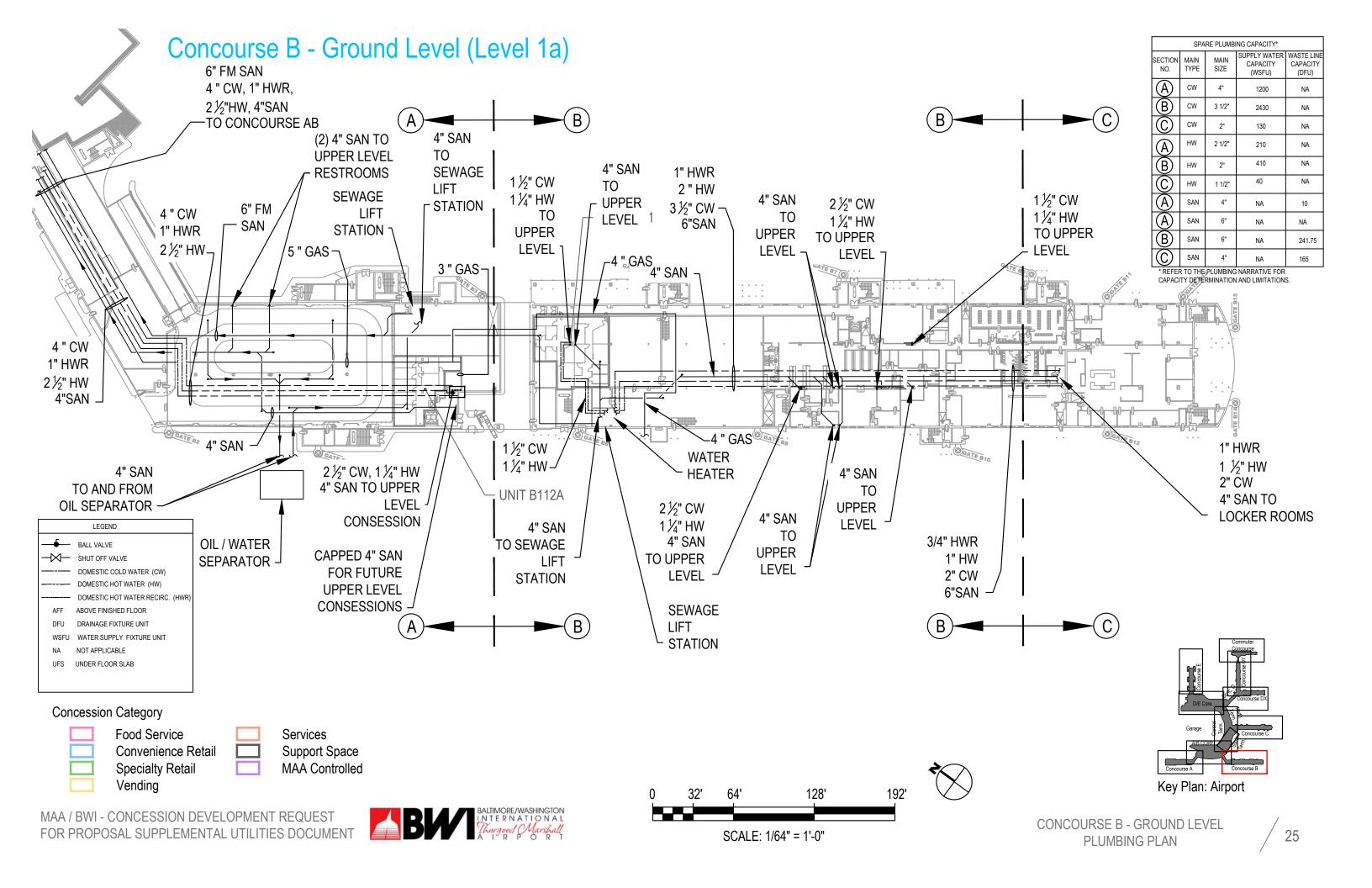


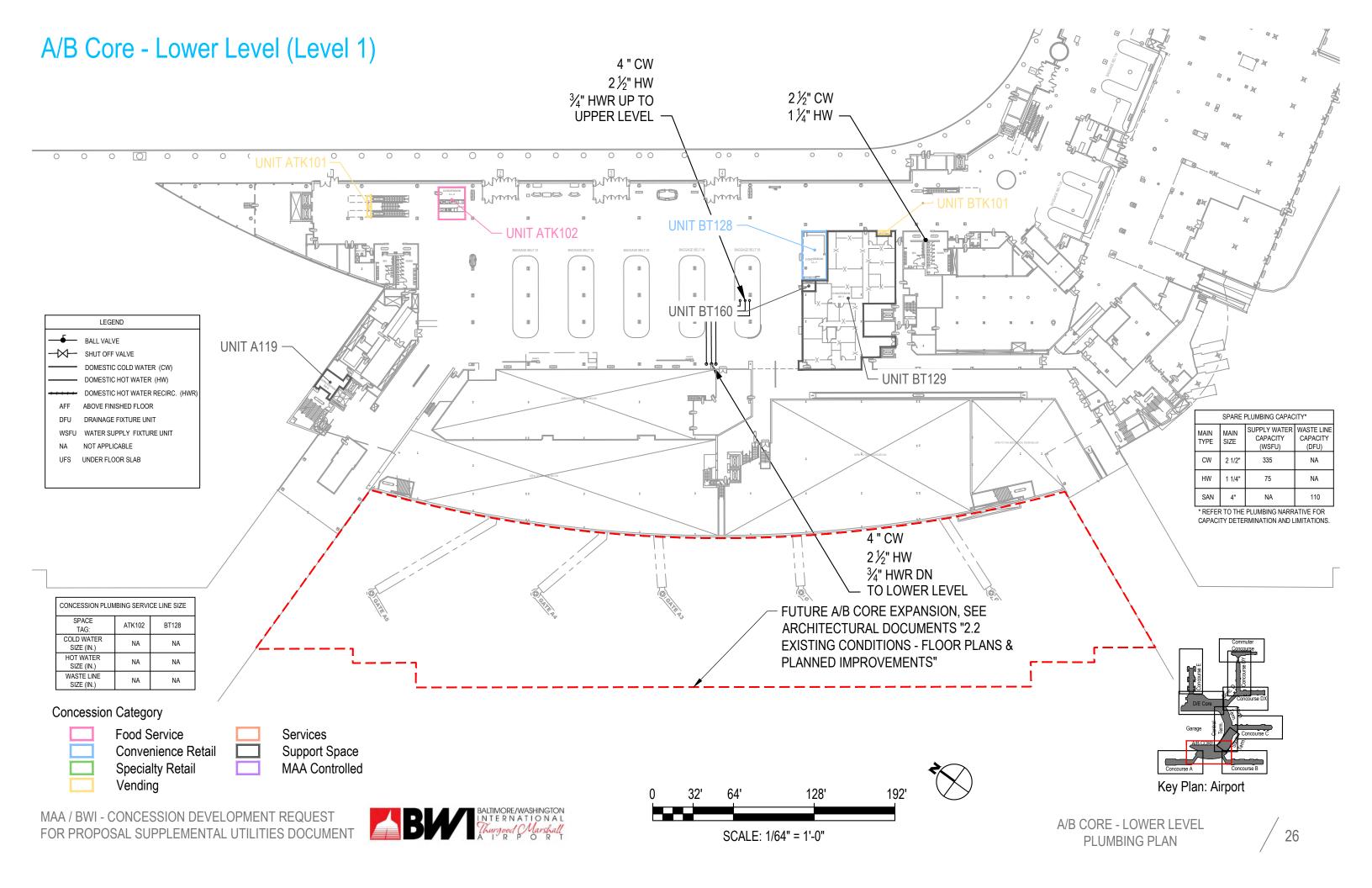


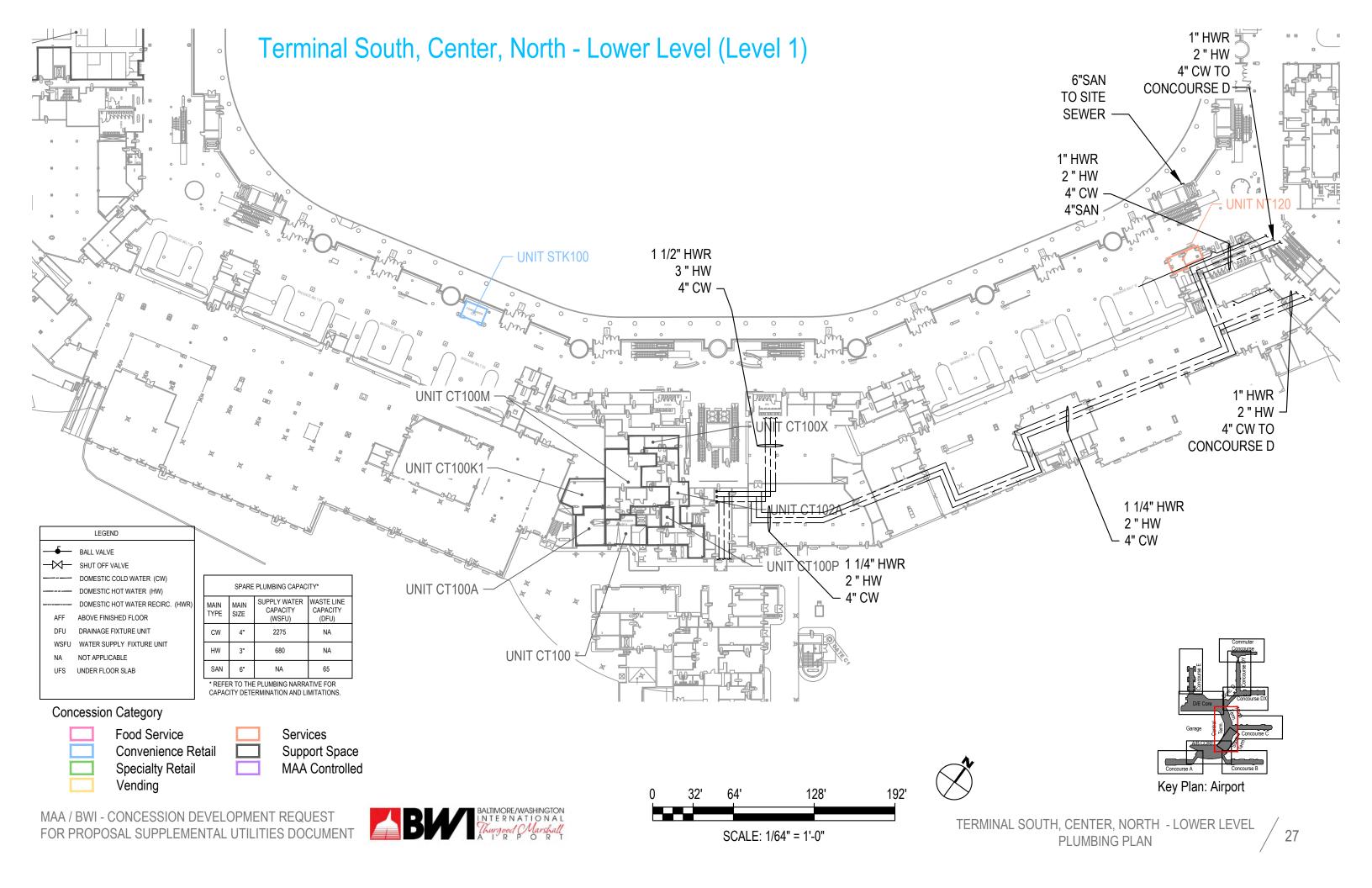


## A/B Core - Ground Level (Level 1a)

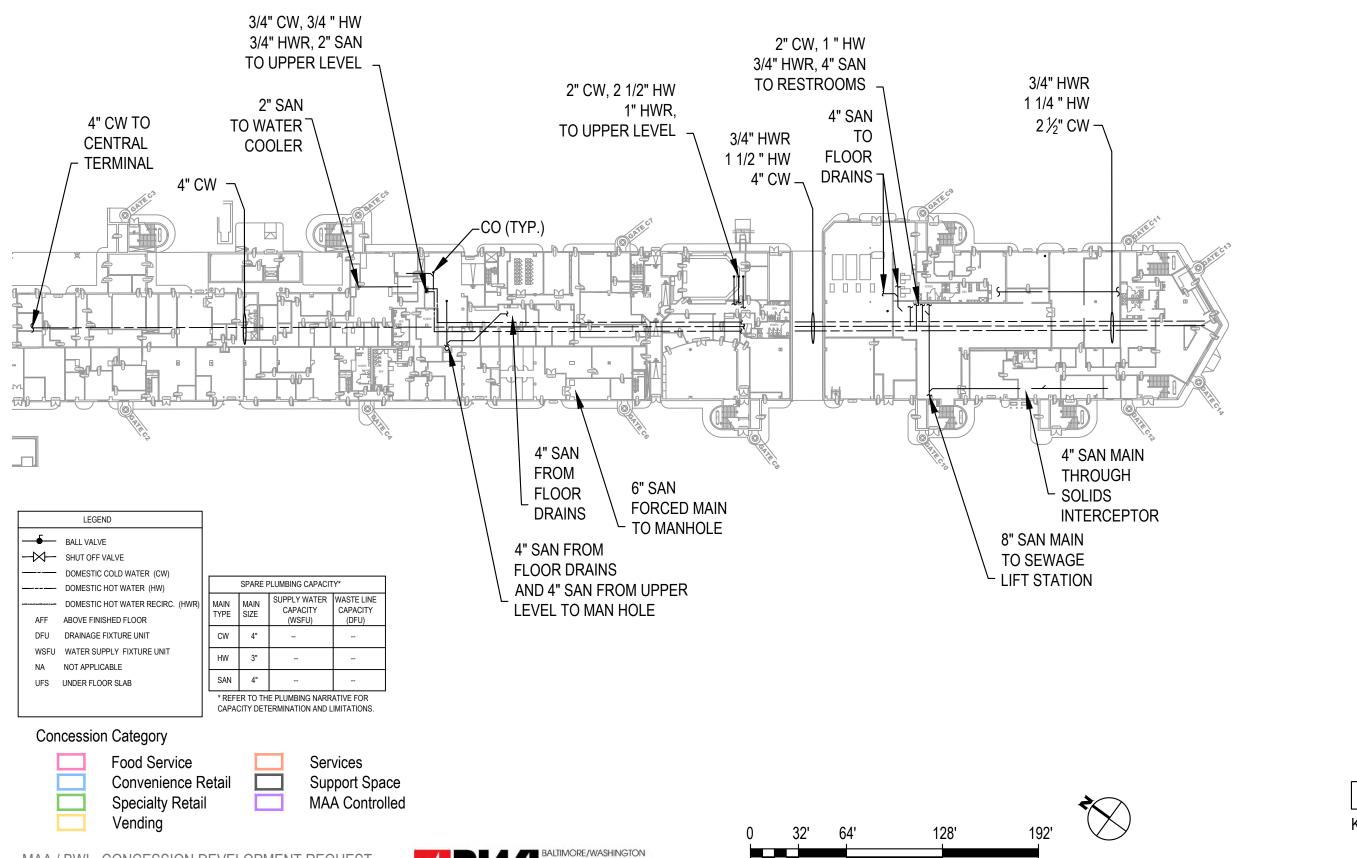






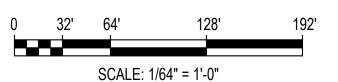


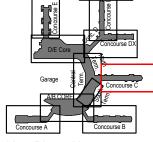
#### Concourse C - Lower Level (Level 1)

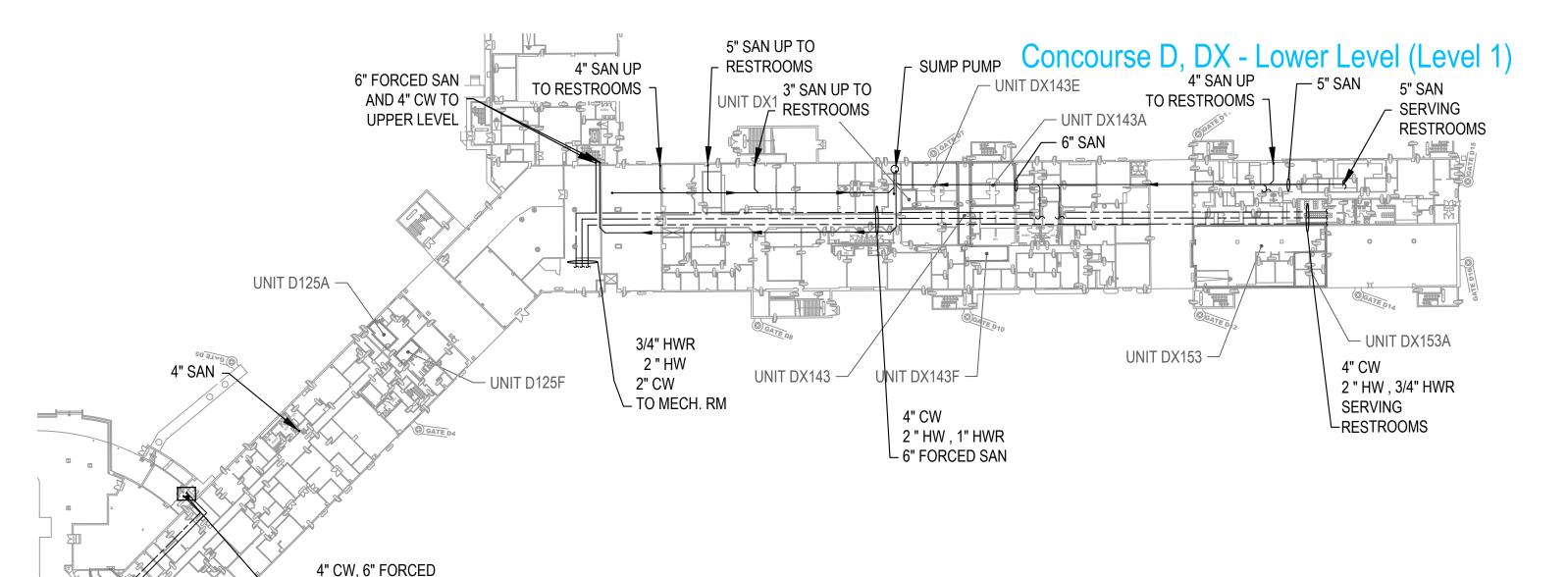


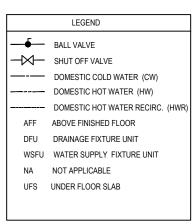
MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT





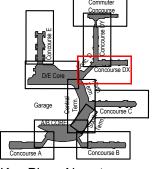






SPARE PLUMBING CAPACITY*						
MAIN TYPE	MAIN SIZE	SUPPLY WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)			
CW	4"	2400	NA			
HW	3"	1100	NA			
SAN	6"	NA	40			

\* REFER TO THE PLUMBING NARRATIVE FOR



Key Plan: Airport

**Concession Category** Food Service Services Support Space Convenience Retail Specialty Retail MAA Controlled Vending

UNIT D103A

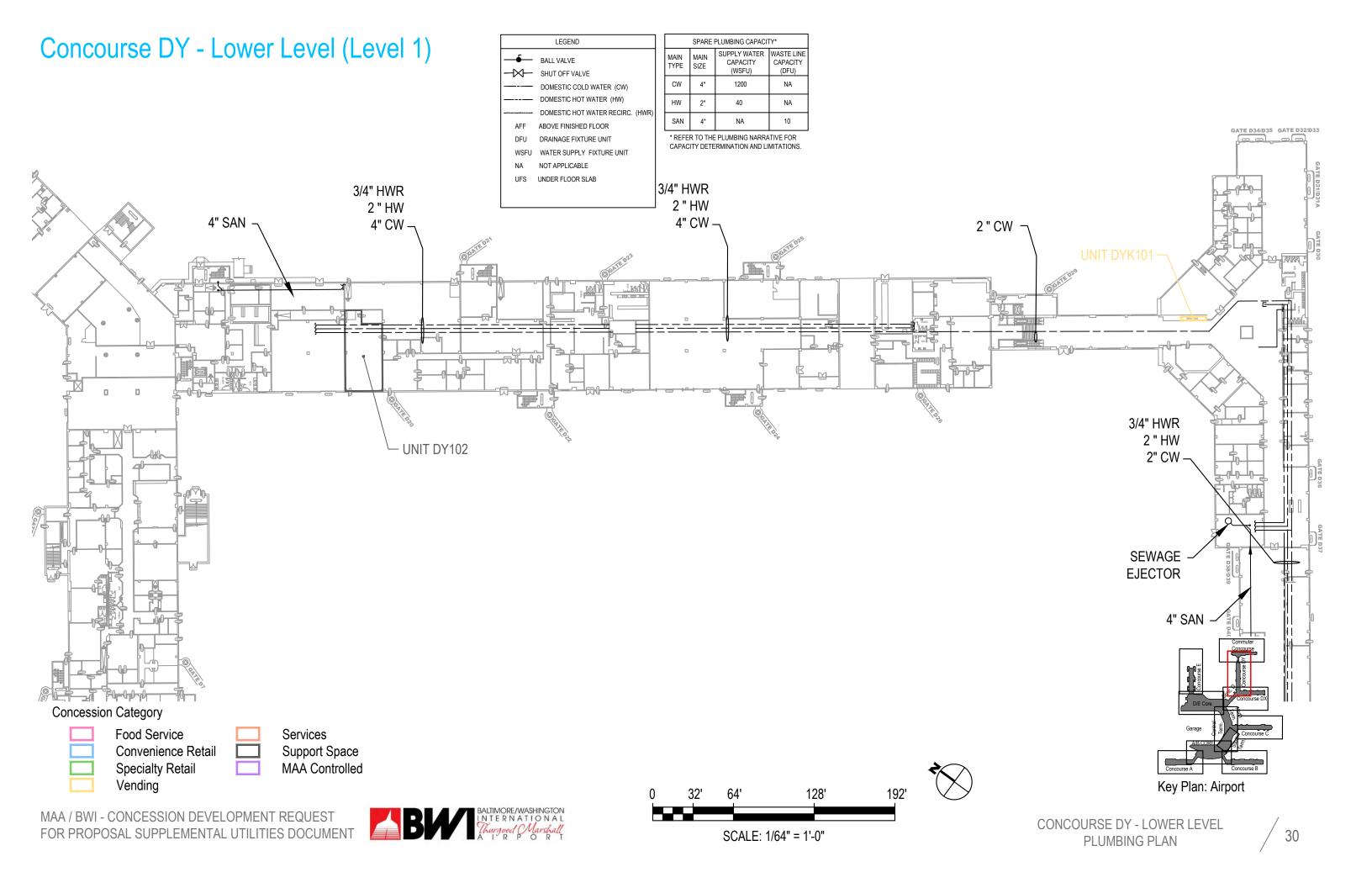
128' SCALE: 1/64" = 1'-0"

MAIN TO UPPER

CONSESSION

LEVEL

CONCOURSE D, DX - LOWER LEVEL PLUMBING PLAN

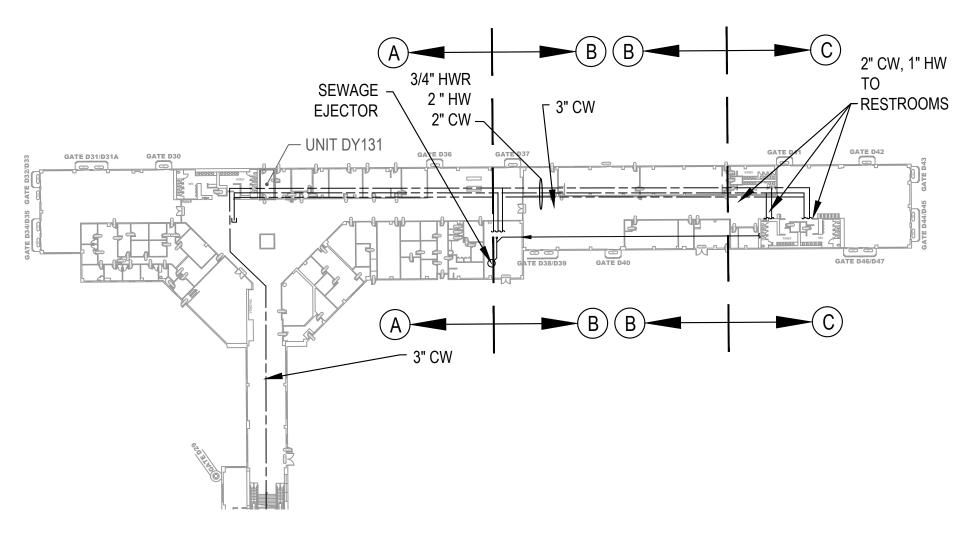


#### Commuter Concourse D - Lower Level (Level 1)

	LEGEND
<b>—</b> •—	BALL VALVE
-₩-	SHUT OFF VALVE
	DOMESTIC COLD WATER (CW)
	DOMESTIC HOT WATER (HW)
	DOMESTIC HOT WATER RECIRC. (HWR
AFF	ABOVE FINISHED FLOOR
DFU	DRAINAGE FIXTURE UNIT
WSFU	WATER SUPPLY FIXTURE UNIT
NA	NOT APPLICABLE
UFS	UNDER FLOOR SLAB

	SPARE PLUMBING CAPACITY*							
SECTION NO.	MAIN TYPE	MAIN SIZE	SUPPLY WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
A	CW	3"	1100					
$^{\odot}$	CW	3	850	1				
$\bigcirc$	CW	2"	60	1				
$\bigcirc$	SAN	NA	NA	NA				
B	SAN	6"	NA	2				
0	SAN	4"	NA	25				

\* REFER TO THE PLUMBING NARRATIVE FOR CAPACITY DETERMINATION AND LIMITATIONS.

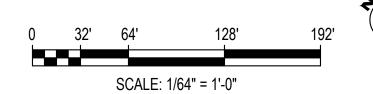




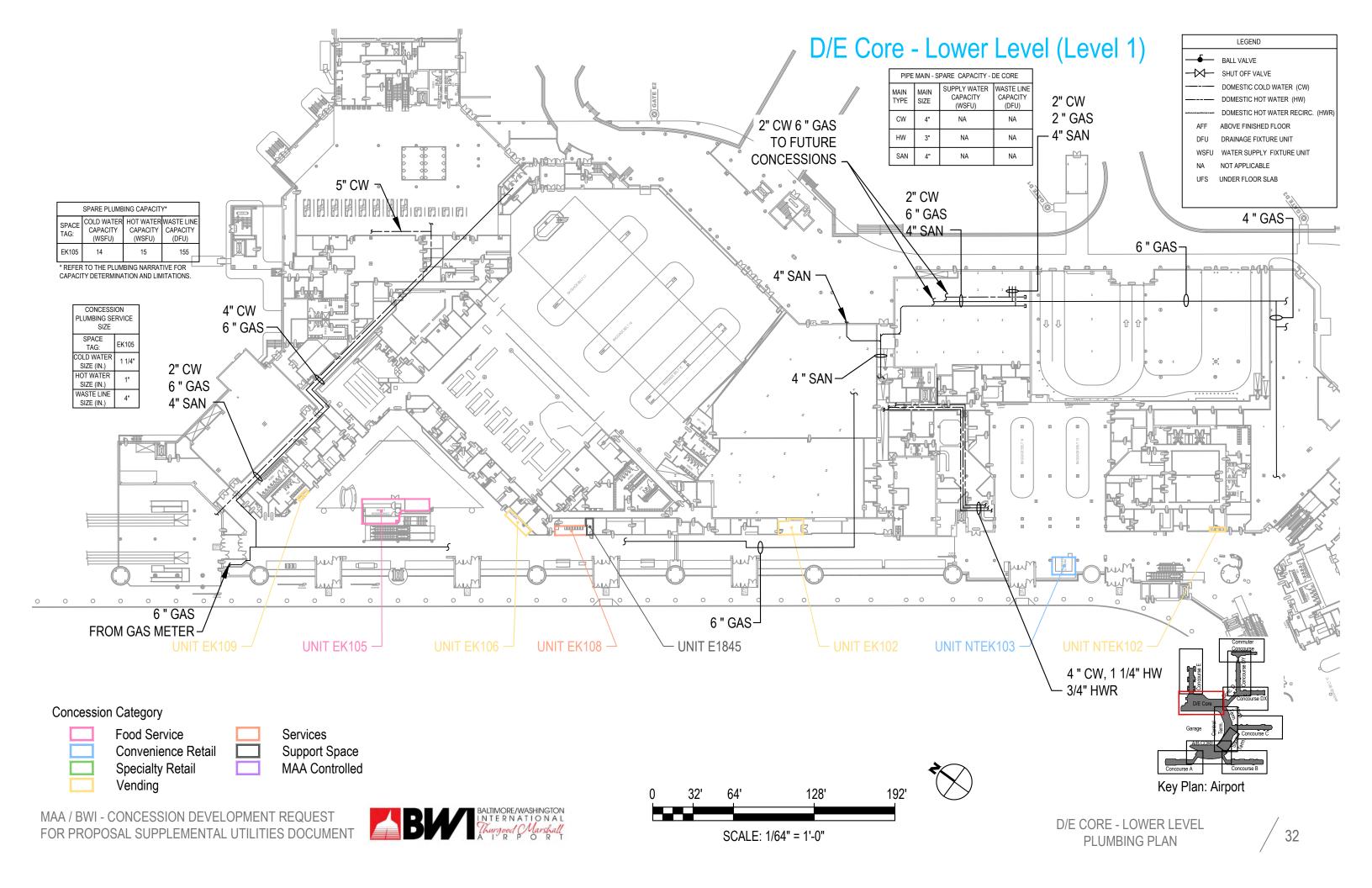


Services
Support Space
MAA Controlled

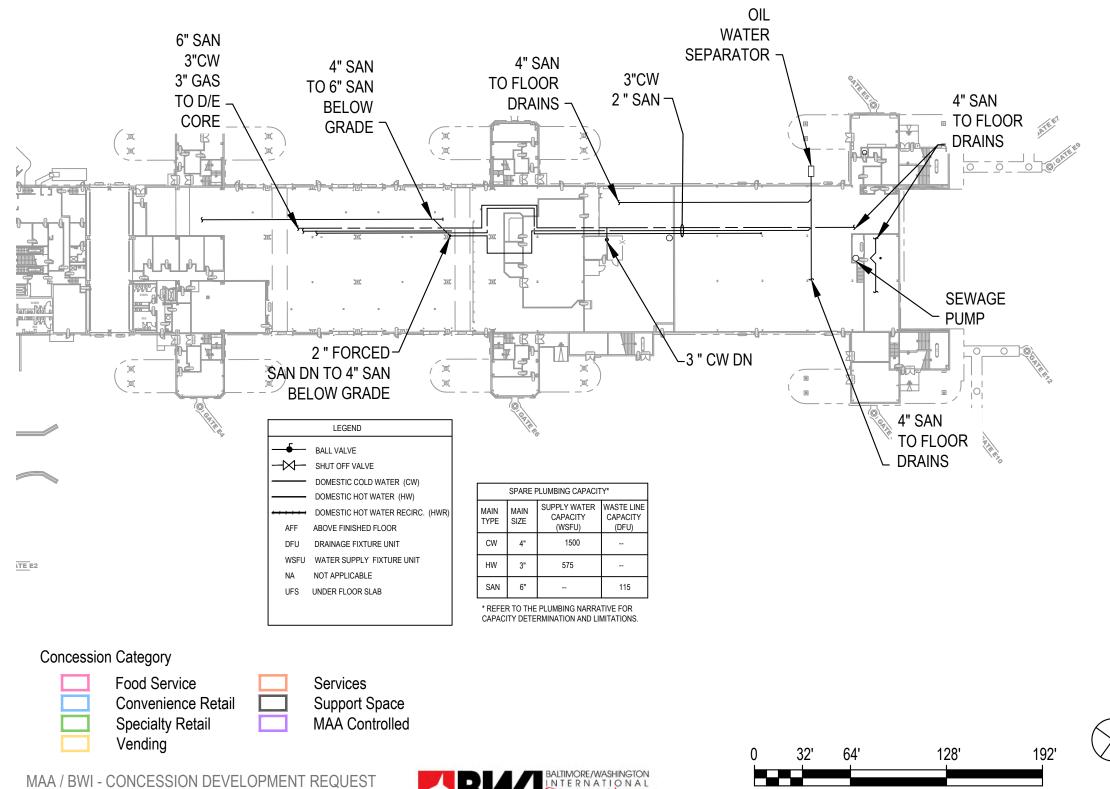


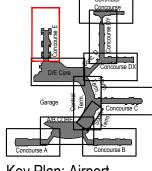


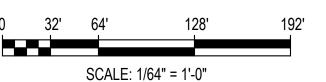




#### Concourse E - Lower Level (Level 1)



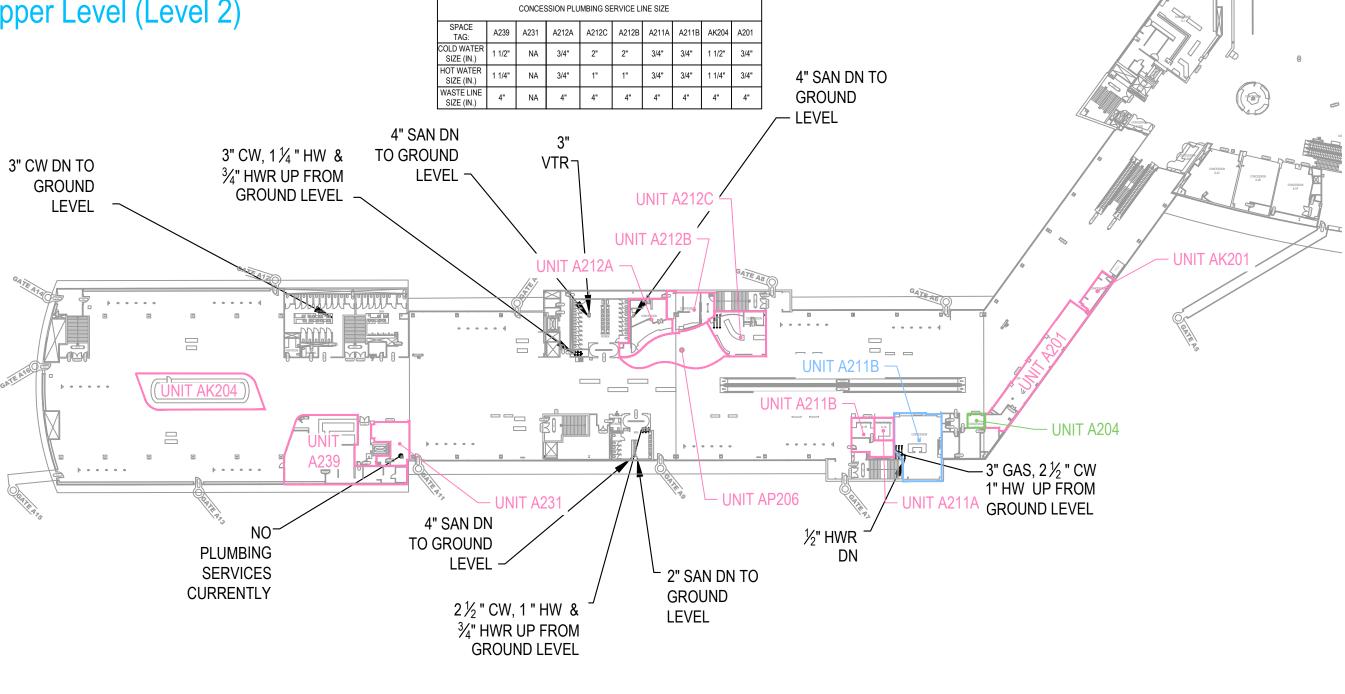


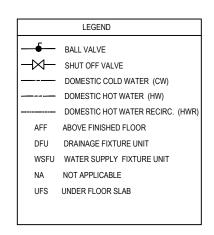


# Concourse A - Upper Level (Level 2)

	SPARE PLUMBING CAPACITY*						
SPACE TAG:	COLD WATER CAPACITY (WSFU)	HOT WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
A239	100	35	90				
A231	NA	NA	NA				
A212A A212C	210	33	130				
A212B	3	5	115				
A211A	6	NA	140				
A211B	8	NA	122				
AK204	110	25	130				
A201	6	NA	140				

<sup>\*</sup> REFER TO THE PLUMBING NARRATIVE FOR CAPACITY DETERMINATION AND LIMITATIONS.



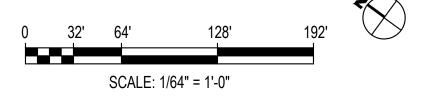


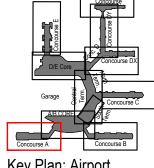


Food Service Convenience Retail Specialty Retail Vending



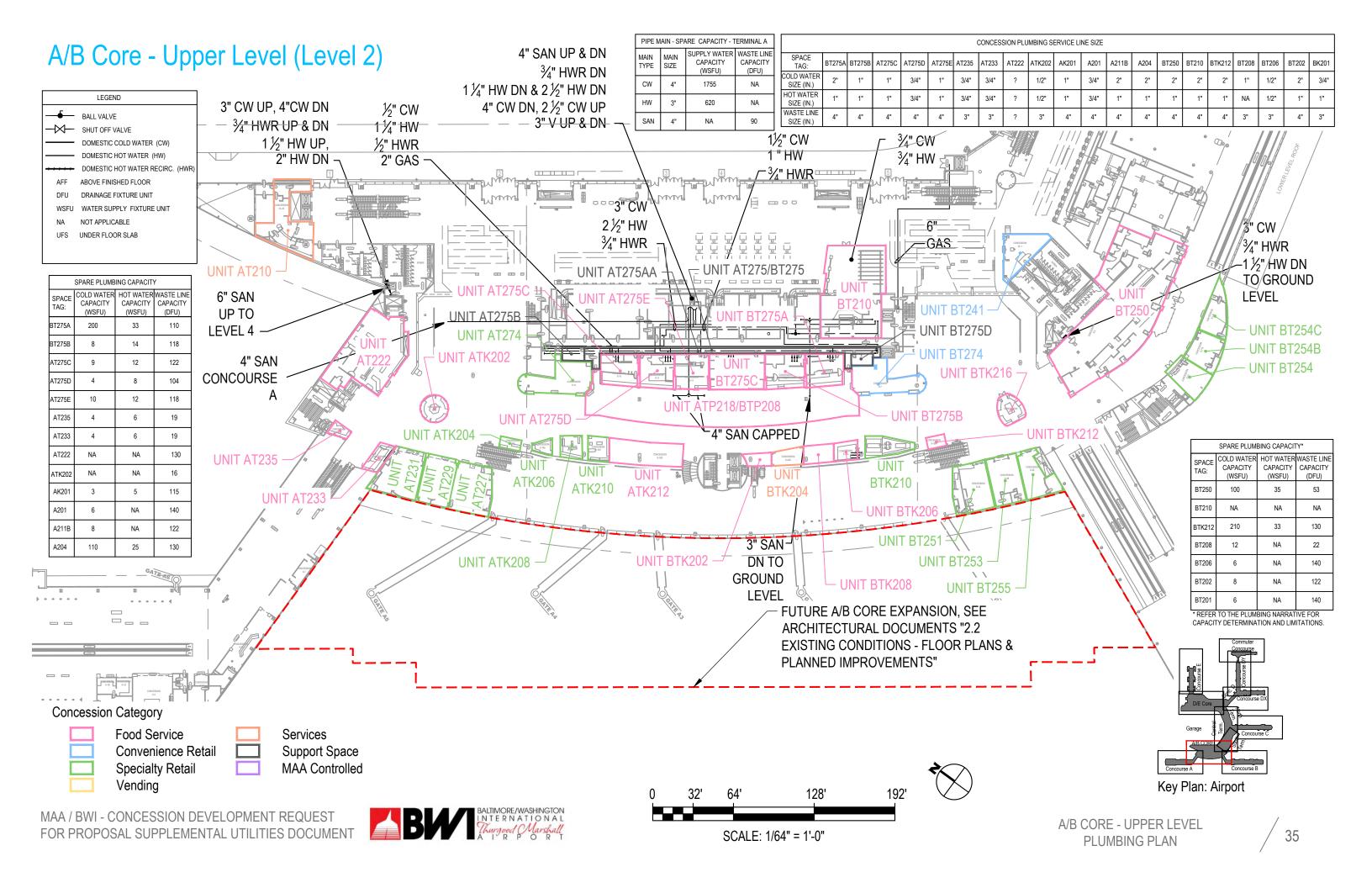


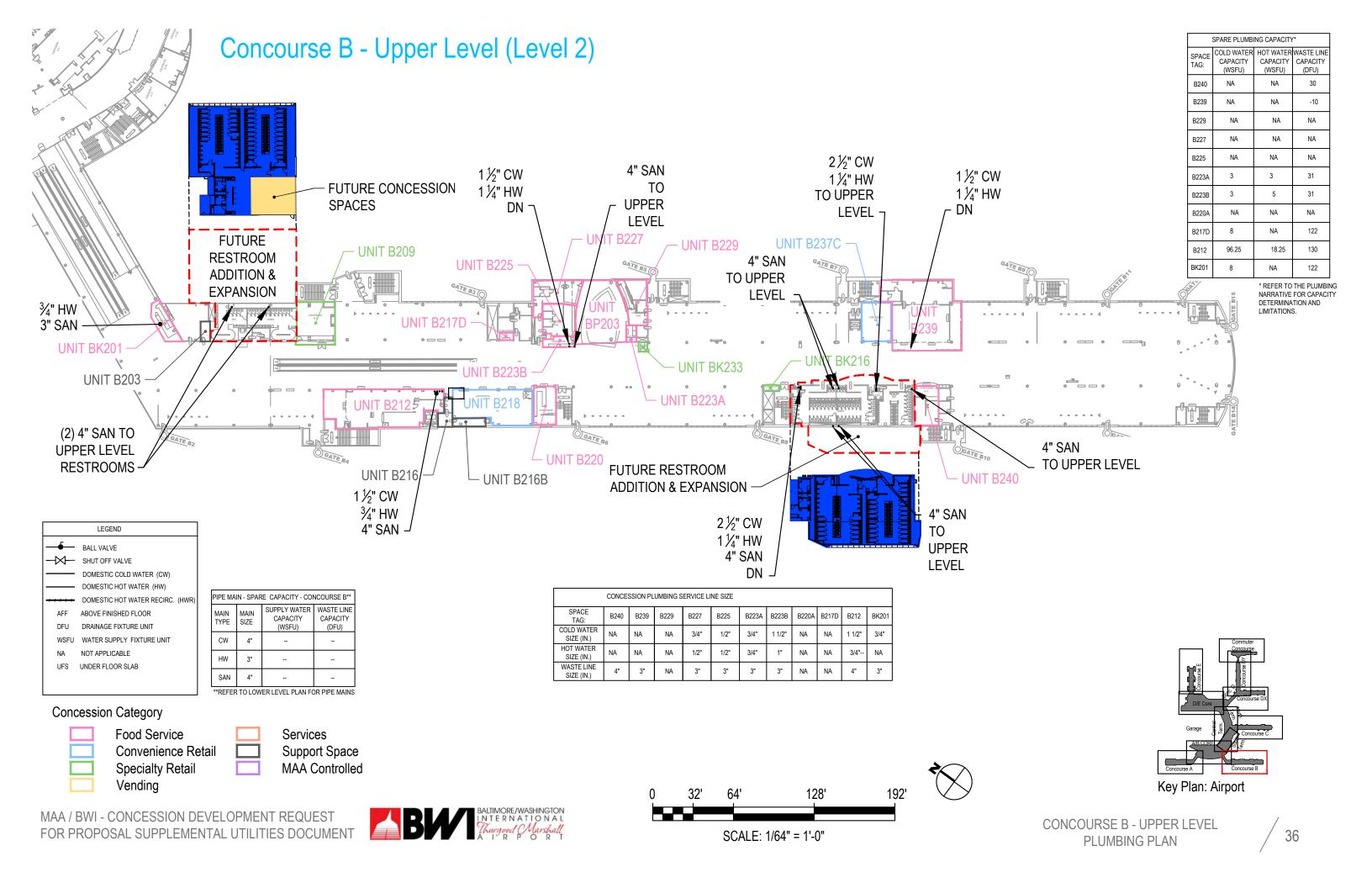


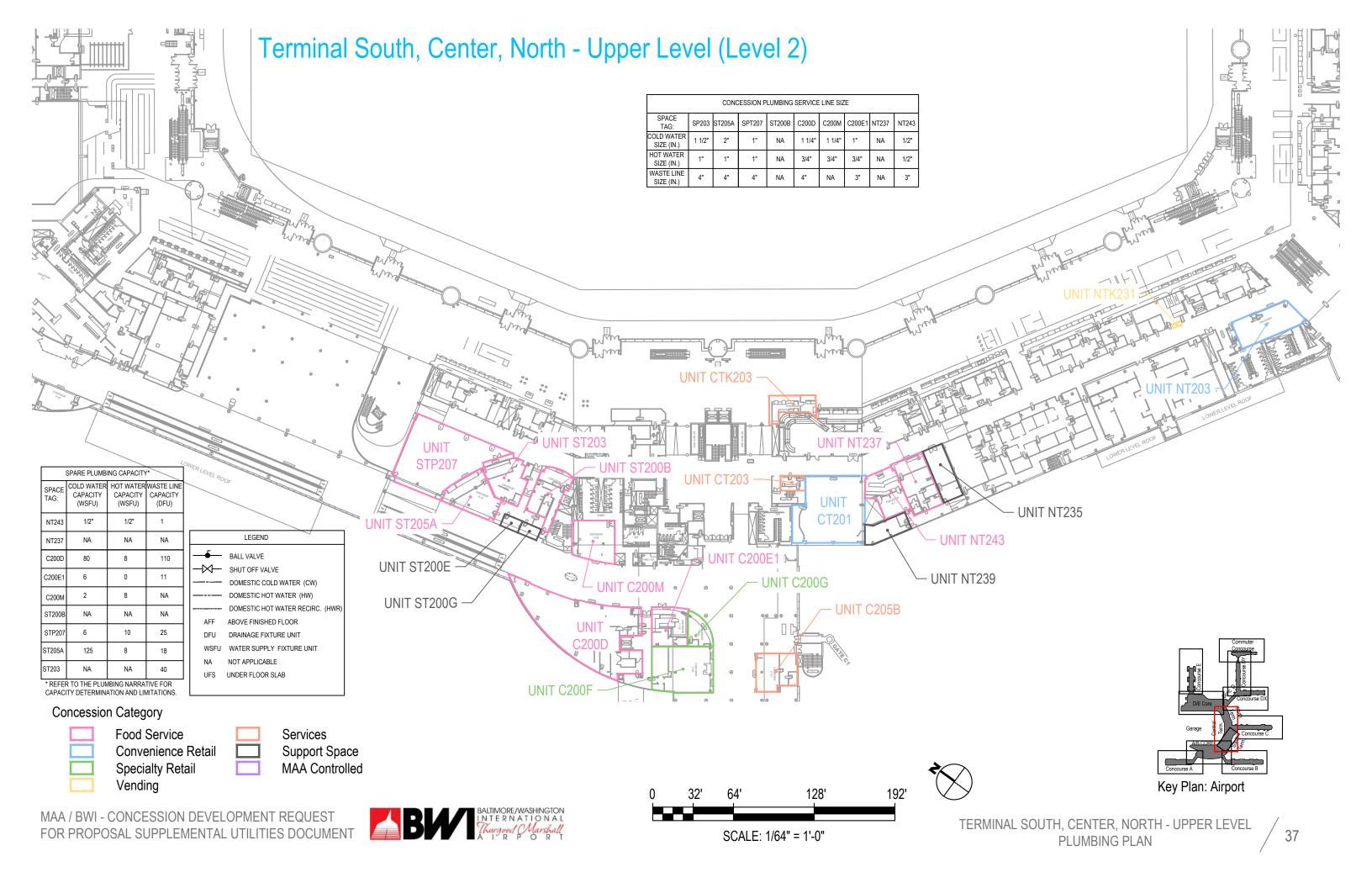


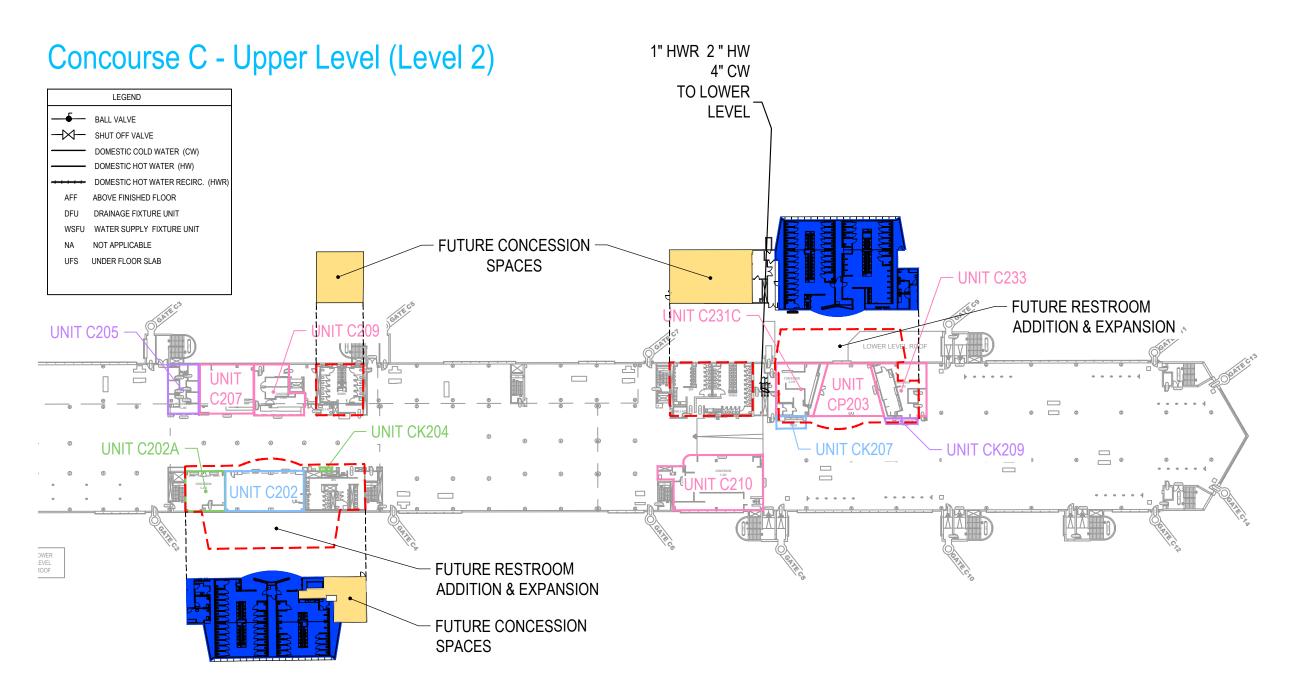
Key Plan: Airport

UNII AIZK





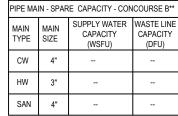




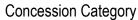
	SPARE PLUMBING CAPACITY*						
SPACE TAG:	COLD WATER CAPACITY (WSFU)	HOT WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
C207	100	35	90				
C209	NA	NA	100				
C210	65	33	40				
C231C	10	5	120				
C233	15	NA	140				
CP203	25	10	100				

\* REFER TO THE PLUMBING NARRATIVE FOR CAPACITY DETERMINATION AND LIMITATIONS.

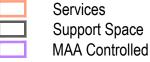
CONCESSION PLUMBING SERVICE LINE SIZE						
SPACE TAG:	C207	C209	C210	C231C	C233	CP203
COLD WATER SIZE (IN.)	1 1/2"	1"	3/4"	2"	2"	3/4"
HOT WATER SIZE (IN.)	1 1/4"	1"	3/4"	1"	1"	3/4"
WASTE LINE SIZE (IN.)	4"	NA	4"	4"	4"	4"



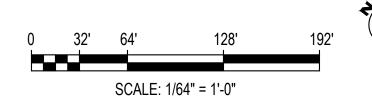
\*\*REFER TO LOWER LEVEL PLAN FOR PIPE MAINS

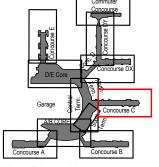


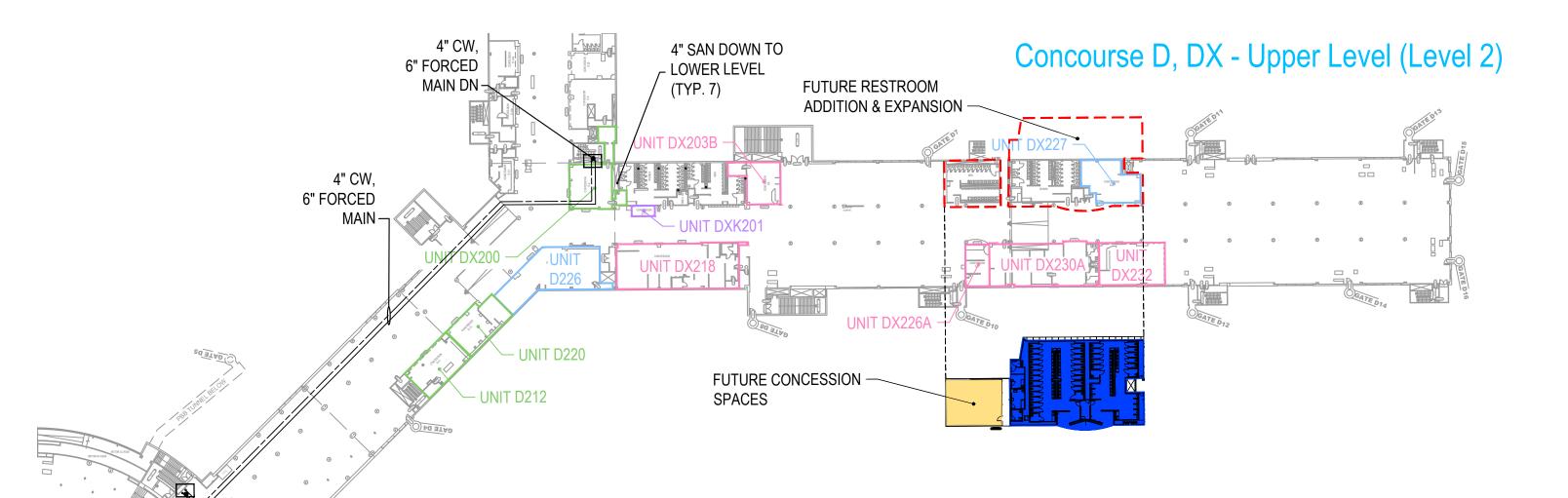
Food Service Convenience Retail Specialty Retail



Vending





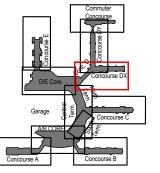


SPARE PLUMBING CAPACITY*							
SPACE TAG:	COLD WATER CAPACITY (WSFU)	HOT WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
DX232	0	4	0				
DX230A	0	4	120				
DX226	3	NA	8				
DX218	1	1	132				
DX203B	NA	NA	NA				
	·						

<sup>\*</sup> REFER TO THE PLUMBING NARRATIVE FOR

	LEGEND	
<u> </u>	BALL VALVE	
<b>→</b> ₩−	SHUT OFF VALVE	
	DOMESTIC COLD WATER (CW)	
	DOMESTIC HOT WATER (HW)	
	DOMESTIC HOT WATER RECIRC. (	HWR)
AFF	ABOVE FINISHED FLOOR	
DFU	DRAINAGE FIXTURE UNIT	
WSFU	WATER SUPPLY FIXTURE UNIT	
NA	NOT APPLICABLE	
UFS	UNDER FLOOR SLAB	

CONCESSION PLUMBING SERVICE LINE SIZE						
SPACE TAG:	DX232	DX230A	DX226	DX218	DX203B	
COLD WATER SIZE (IN.)	3/4"	1"	3/4"	1"	NA	
HOT WATER SIZE (IN.)	3/4"	1"	3/4"	1"	NA	
WASTE LINE SIZE (IN.)	3"	4"	3"	4"	NA	



Key Plan: Airport

128'

SCALE: 1/64" = 1'-0"





**Concession Category** 

Food Service

Specialty Retail

Vending

Convenience Retail

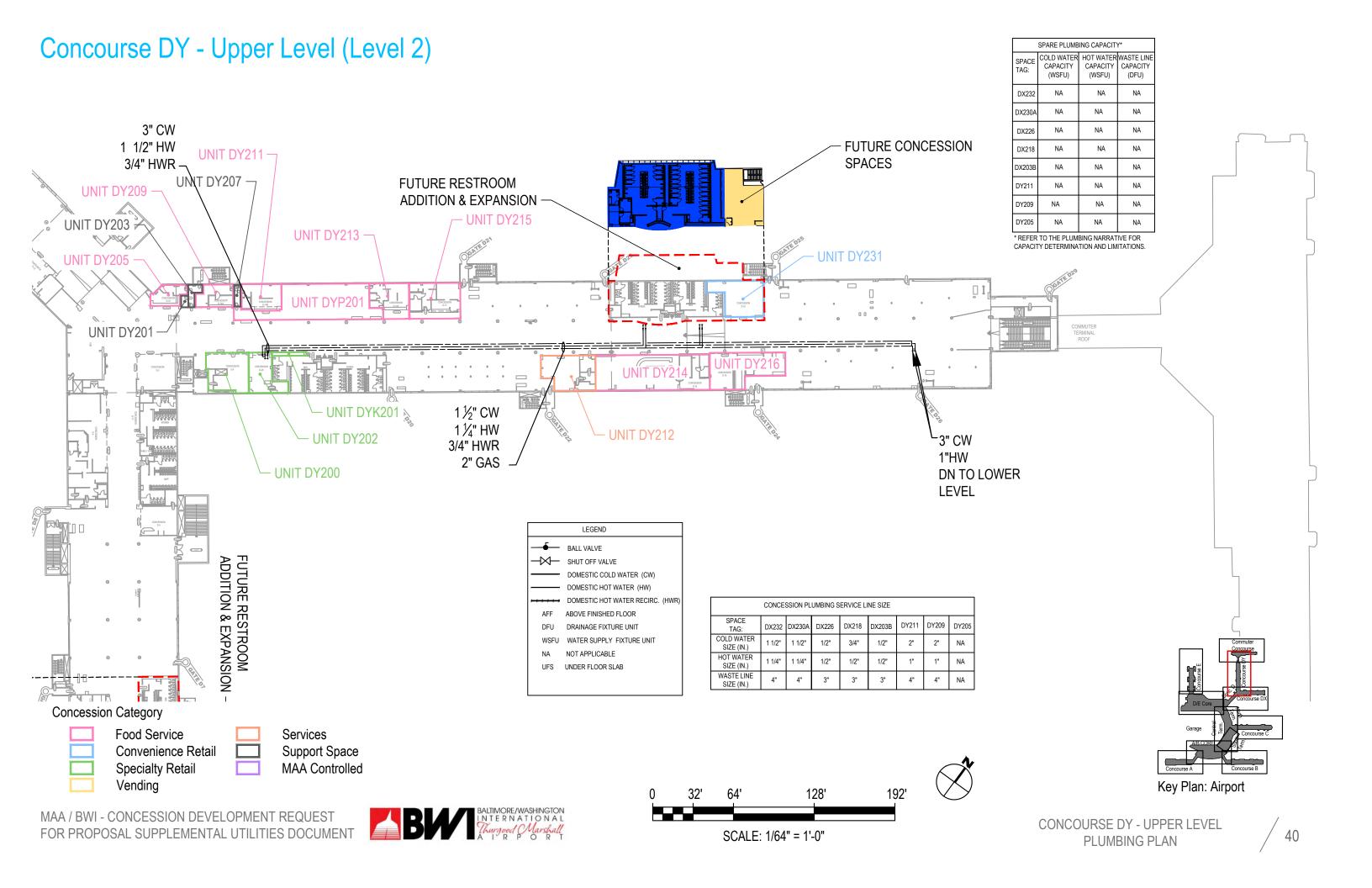
4" CW, 6"

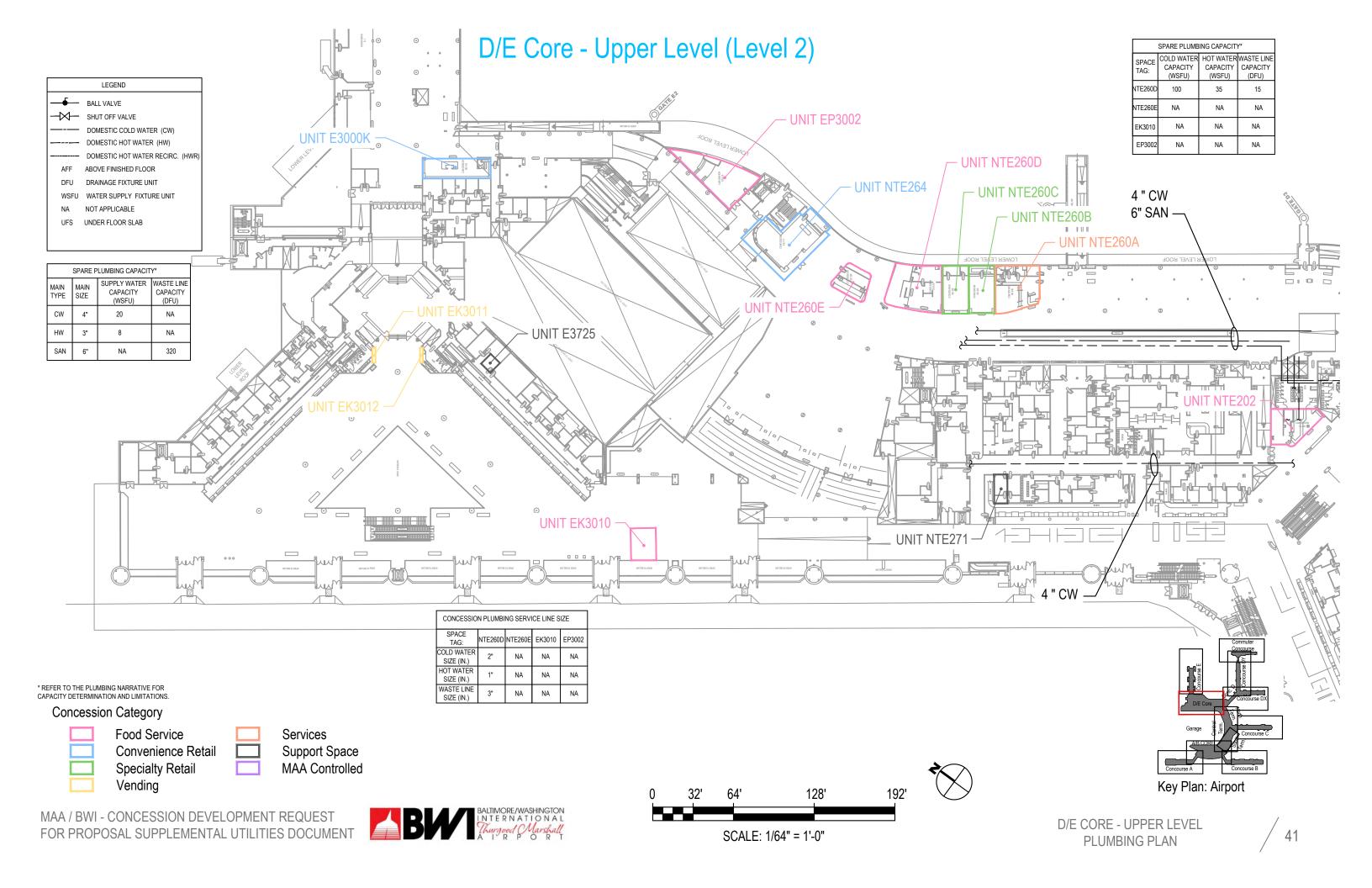
- LEVEL

Services

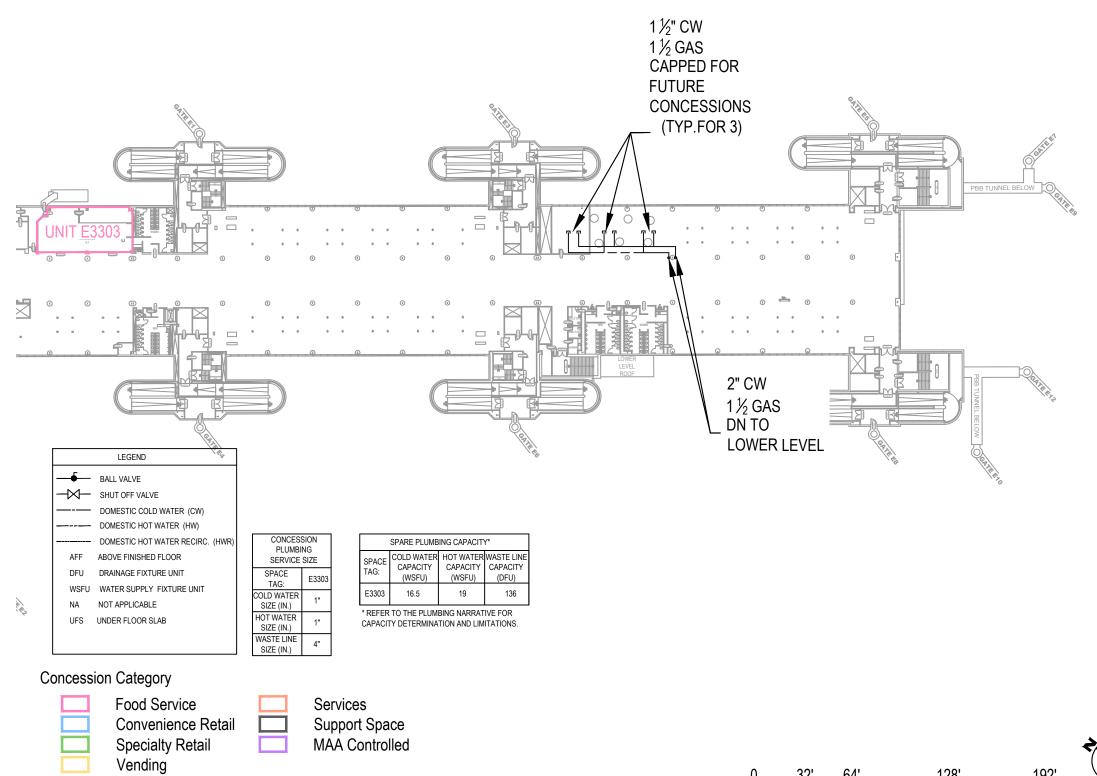
Support Space MAA Controlled

FORCED MAIN UP FROM LOWER





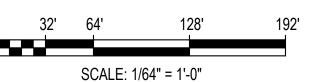
#### Concourse E - Upper Level (Level 2)





Key Plan: Airport

BALTIMORE/W.



### Terminal Observation Gallery - Upper Level Mezzanine

SPARE PLUMBING CAPACITY*							
SPACE TAG:	COLD WATER CAPACITY (WSFU)	HOT WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
OBG10A	10	4	90				

	LEGEND
<u> </u>	BALL VALVE
<b> </b> -₩-	SHUT OFF VALVE
	DOMESTIC COLD WATER (CW)
	DOMESTIC HOT WATER (HW)
	DOMESTIC HOT WATER RECIRC. (HWR)
AFF	ABOVE FINISHED FLOOR
DFU	DRAINAGE FIXTURE UNIT
WSFU	WATER SUPPLY FIXTURE UNIT
NA	NOT APPLICABLE
UFS	UNDER FLOOR SLAB
1	

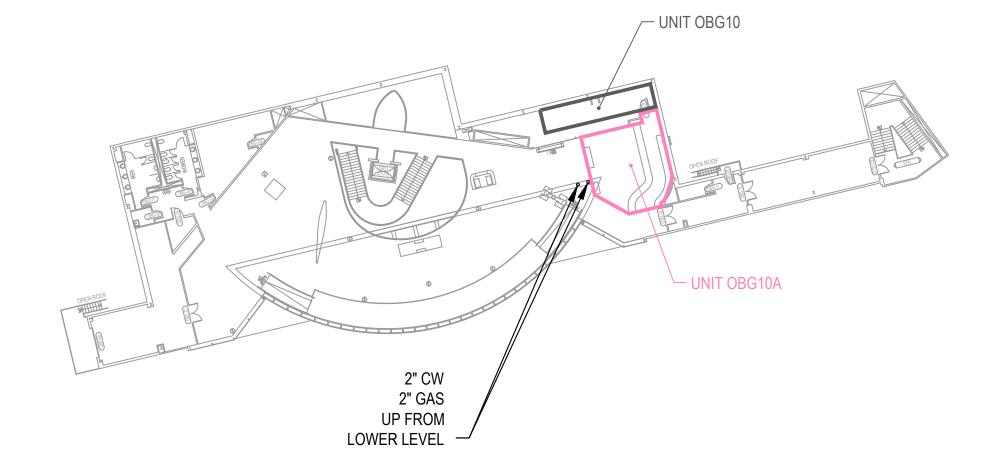
PIPE MAIN - SPARE CAPACITY - TERMINAL OBSERVATION GALLERY*							
MAIN TYPE	MAIN SIZE	SUPPLY WATER CAPACITY (WSFU)	WASTE LINE CAPACITY (DFU)				
CW	2"	4	NA				
HW	3"	0	NA				
SAN	4"	NA	90				

\* REFER TO THE PLUMBING NARRATIVE FOR CAPACITY DETERMINATION AND LIMITATIONS.

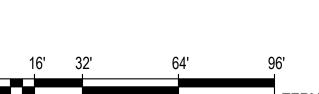
#### **Concession Category**





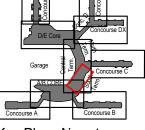


CONCESSION PLUMBING SERVICE LINE SIZE		
SPACE TAG:	OBG10A	
COLD WATER SIZE (IN.)	1"	
HOT WATER SIZE (IN.)	1"	
WASTE LINE SIZE (IN.)	4"	



SCALE: 1/32" = 1'-0"





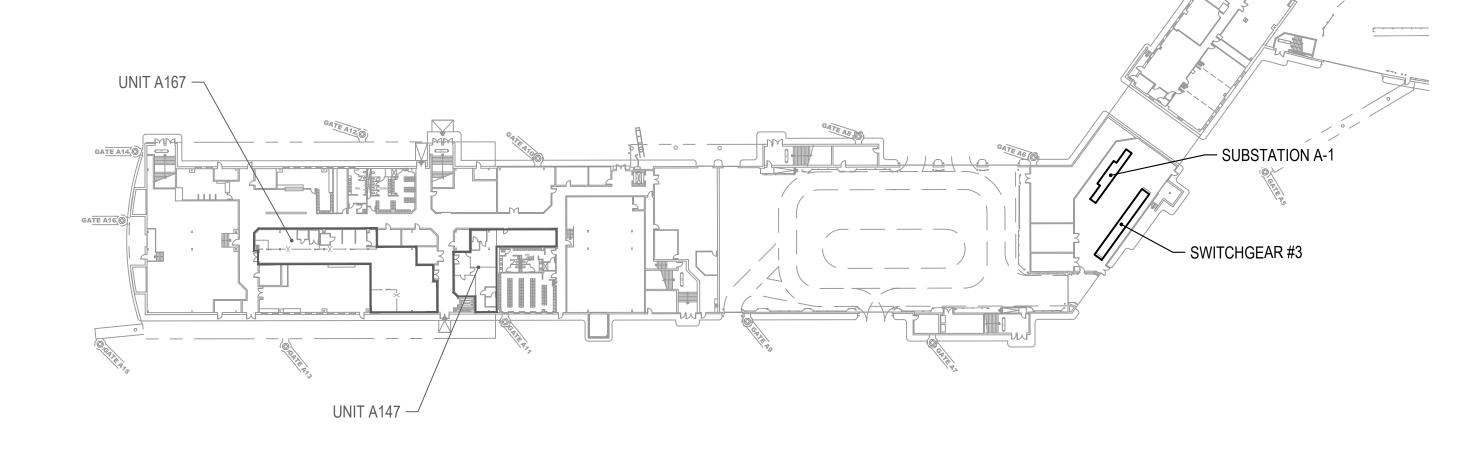
Key Plan: Airport

MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT



TERMINAL OBSERVATION GALLERY - UPPER LEVEL MEZZANINE PLUMBING PLAN

### Concourse A - Ground Level (Level 1a)

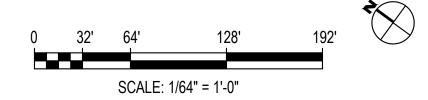


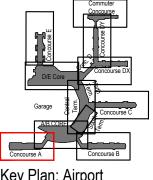




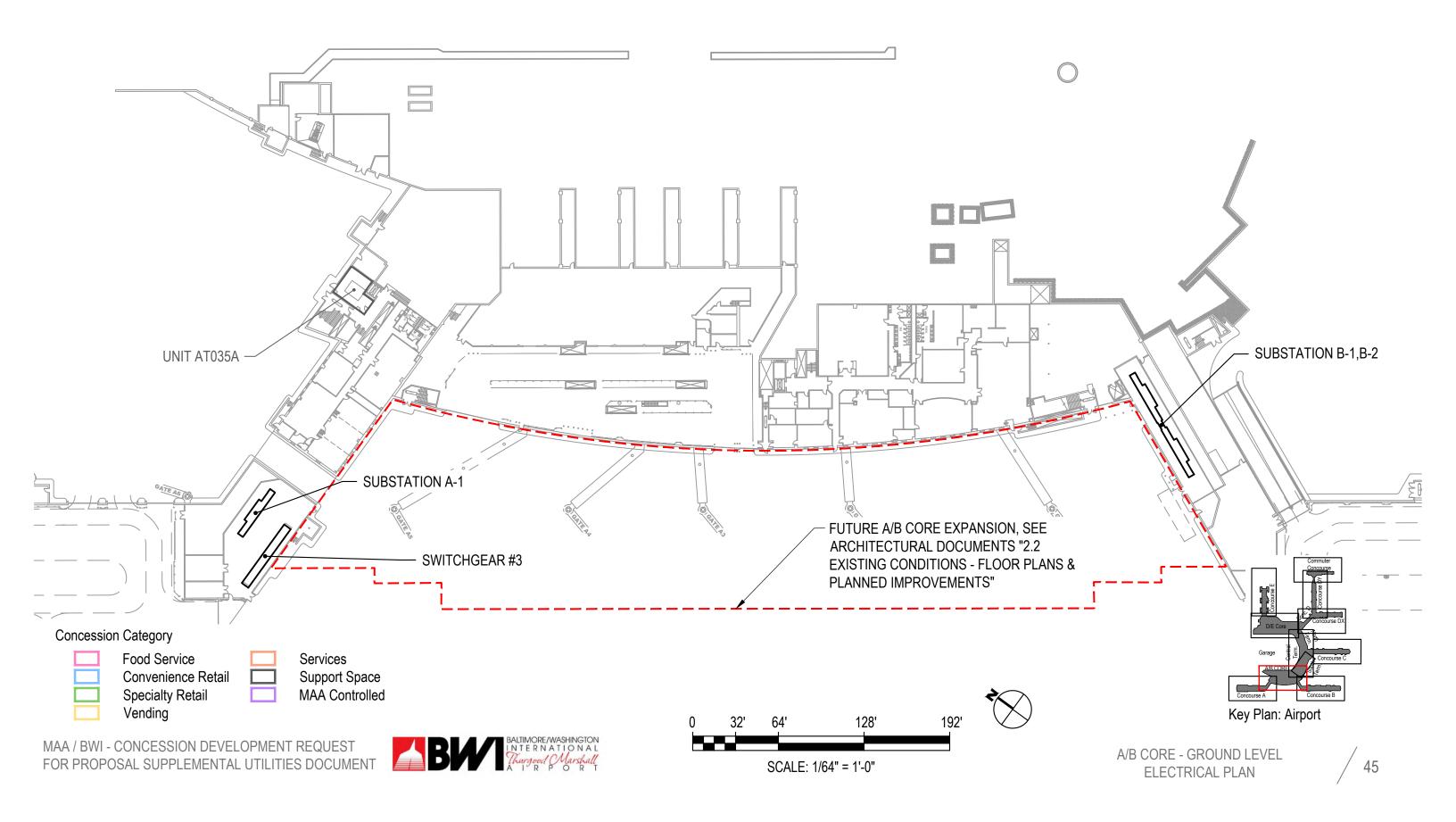
Services Support Space MAA Controlled

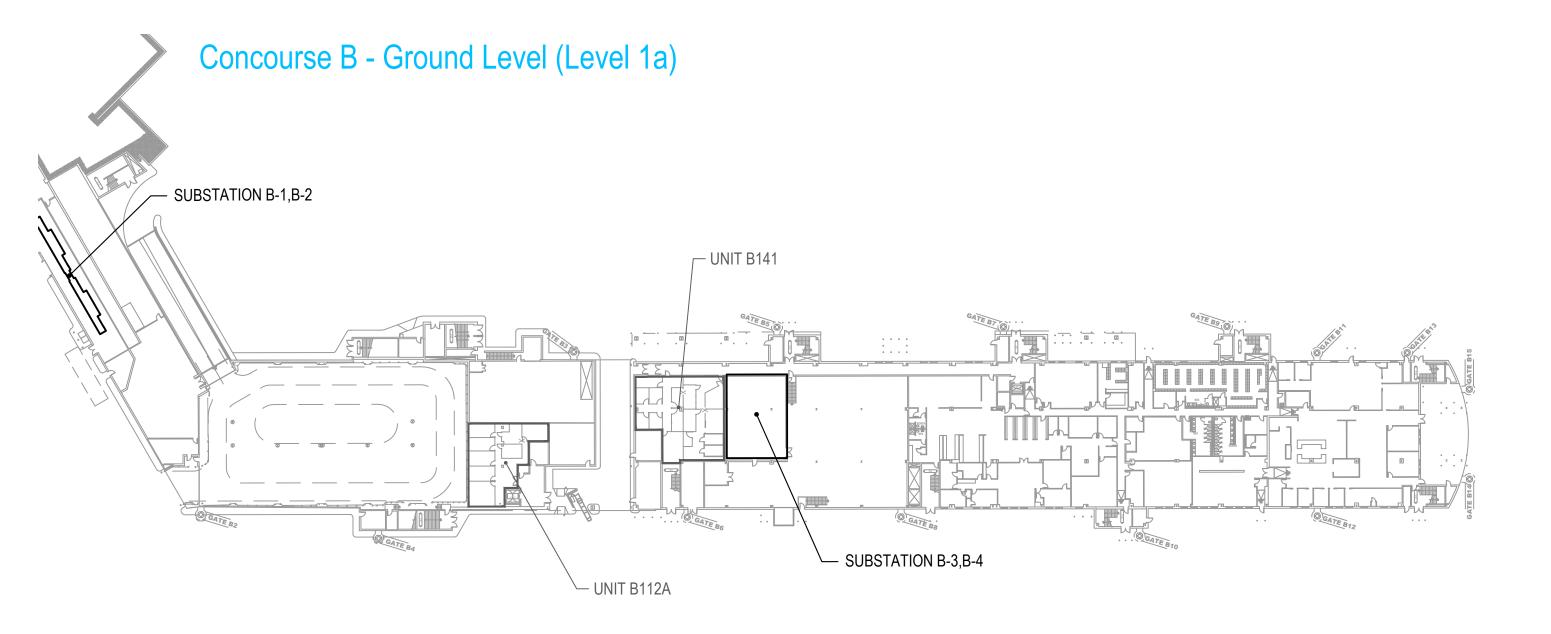






#### A/B Core - Ground Level (Level 1a)



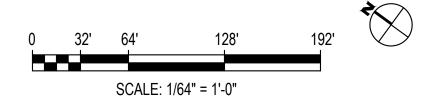


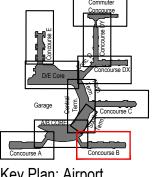


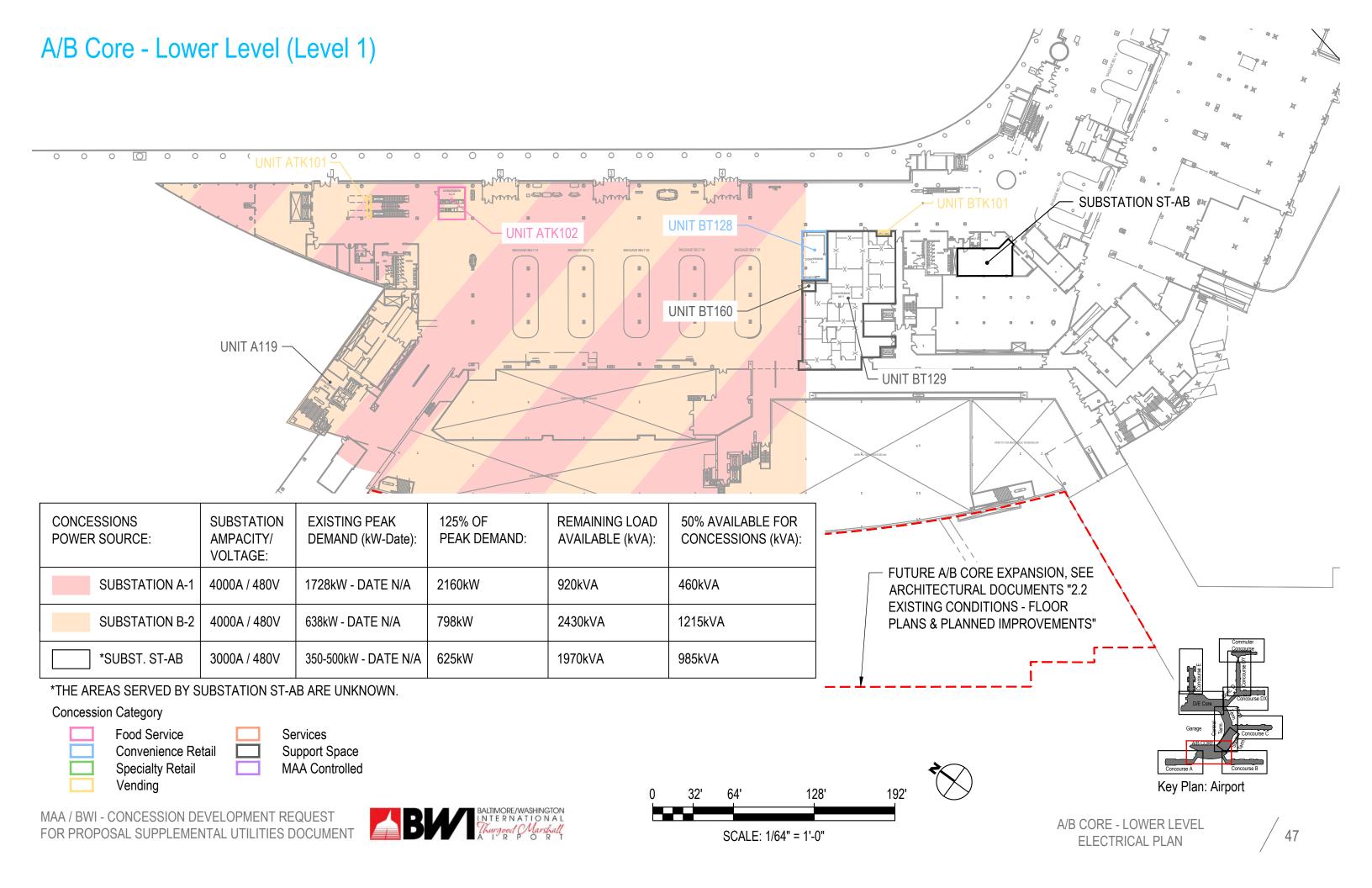


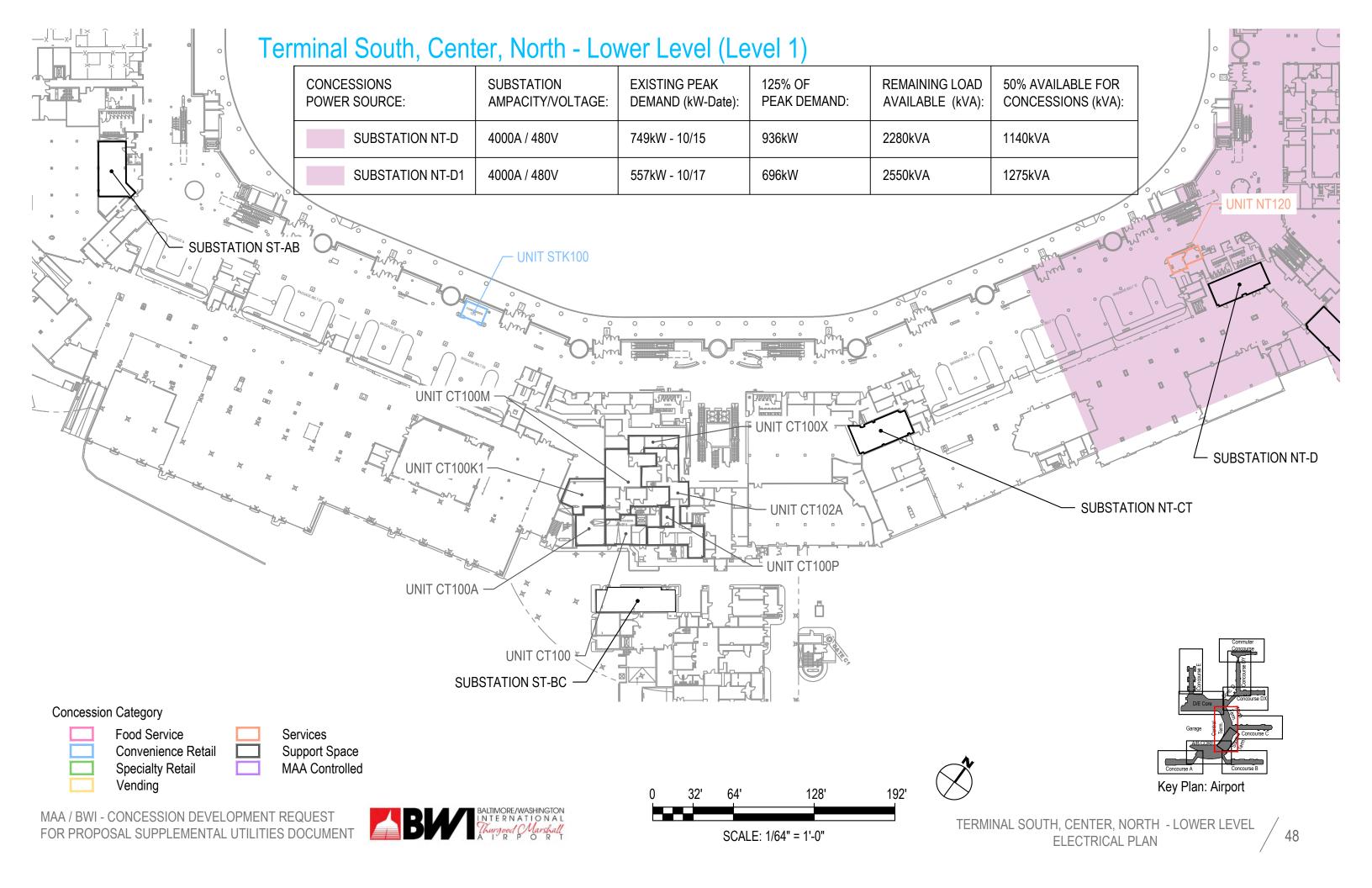
Services Support Space MAA Controlled



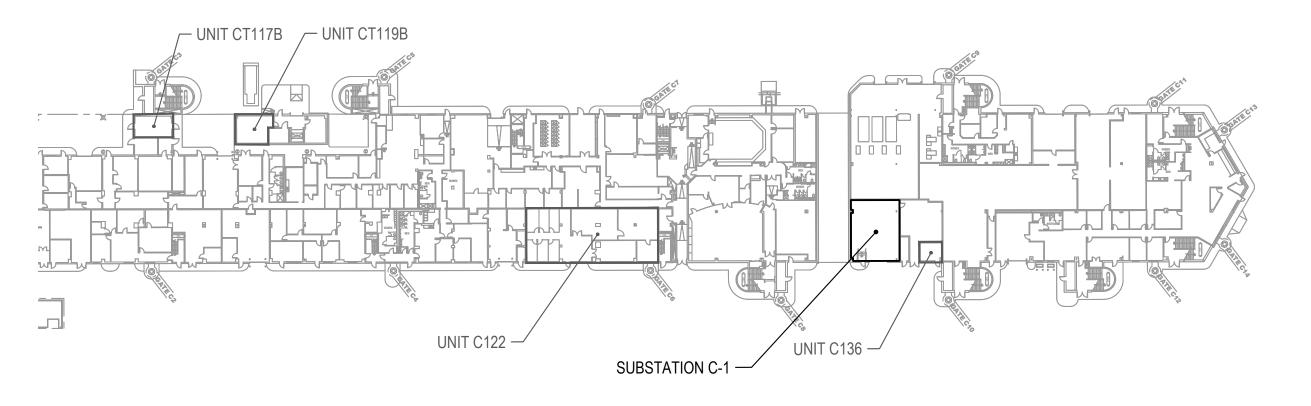








#### Concourse C - Lower Level (Level 1)

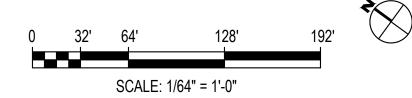


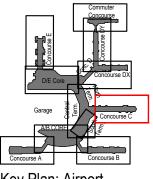


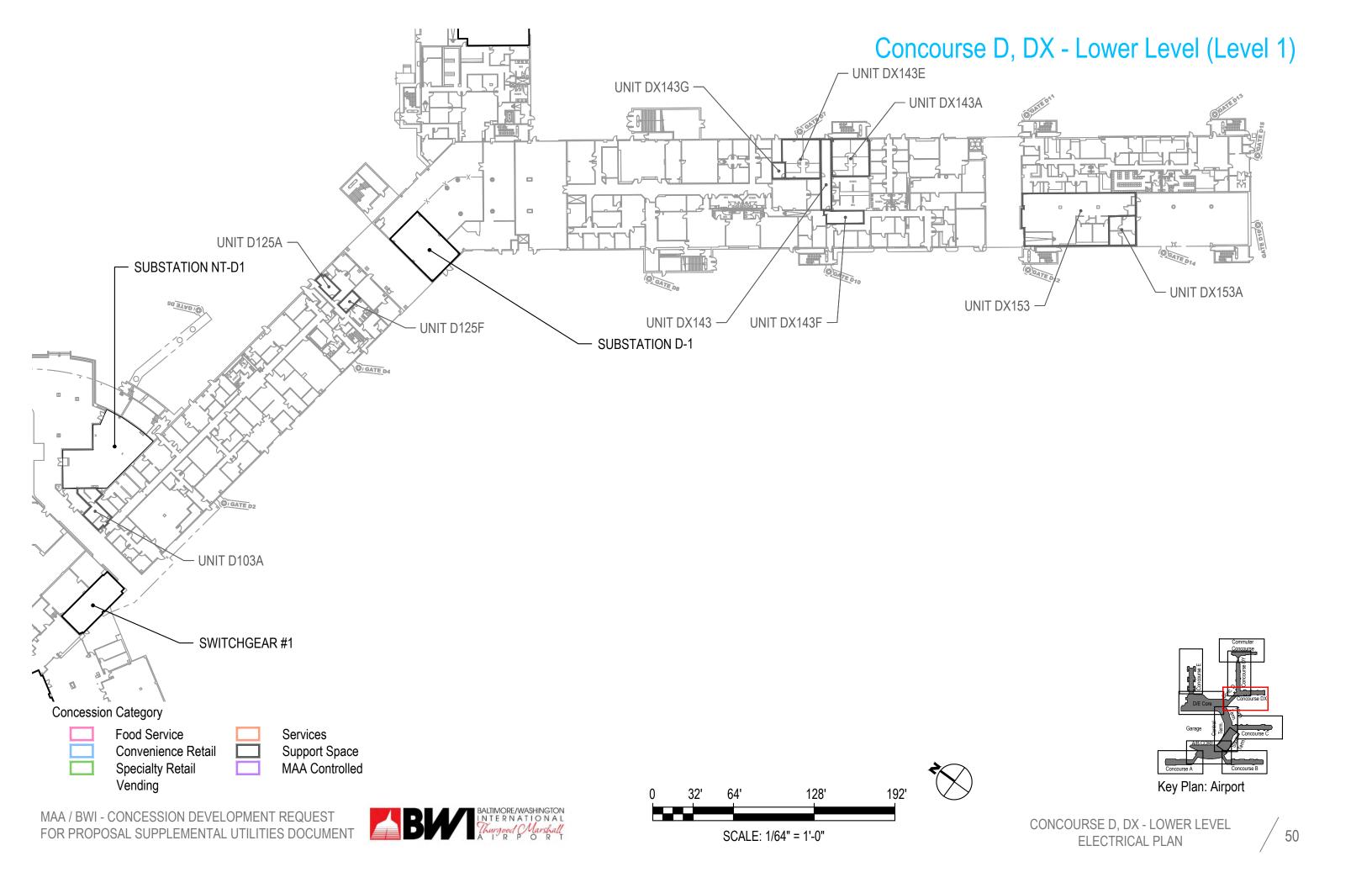


Services Support Space MAA Controlled

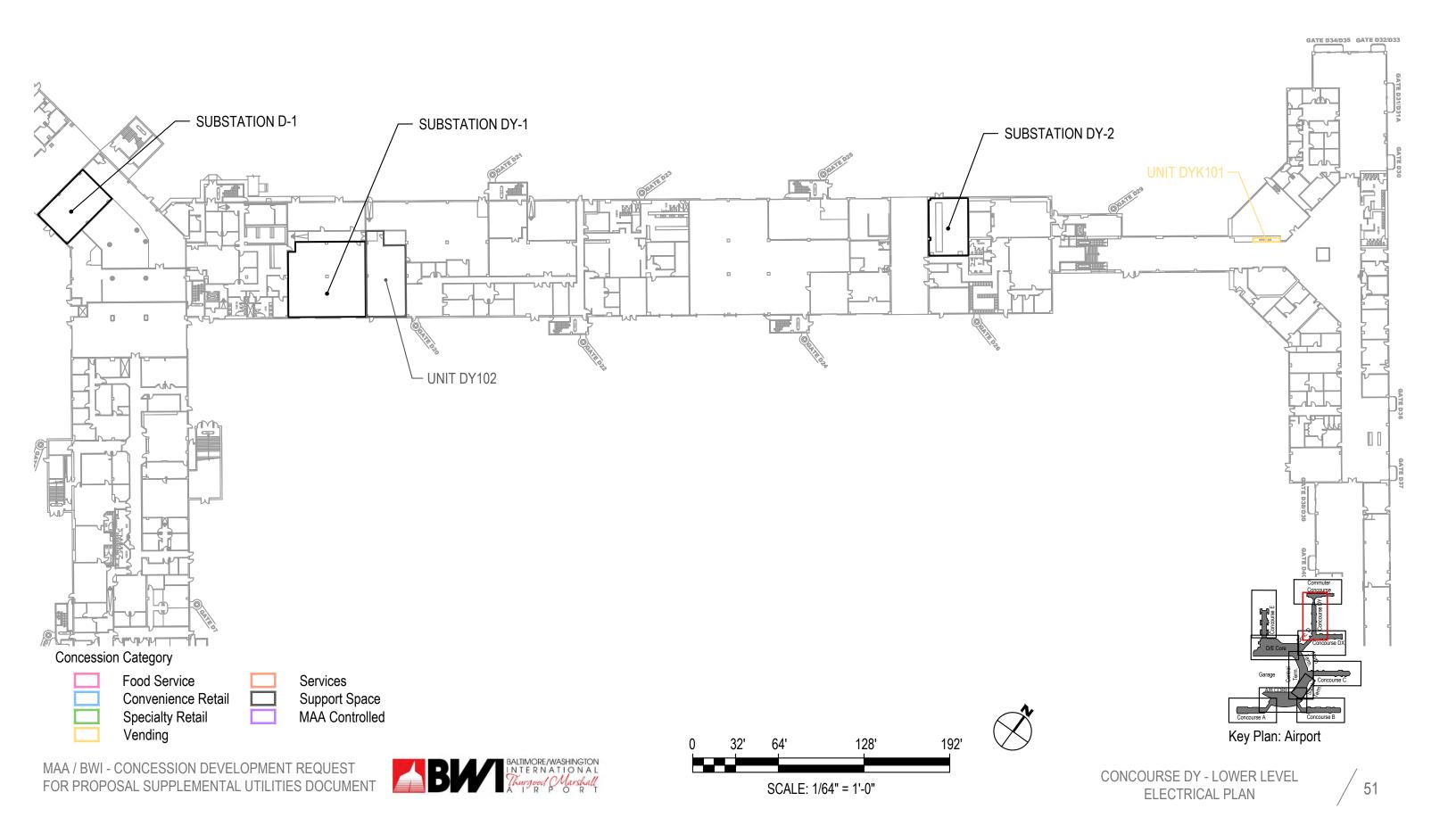




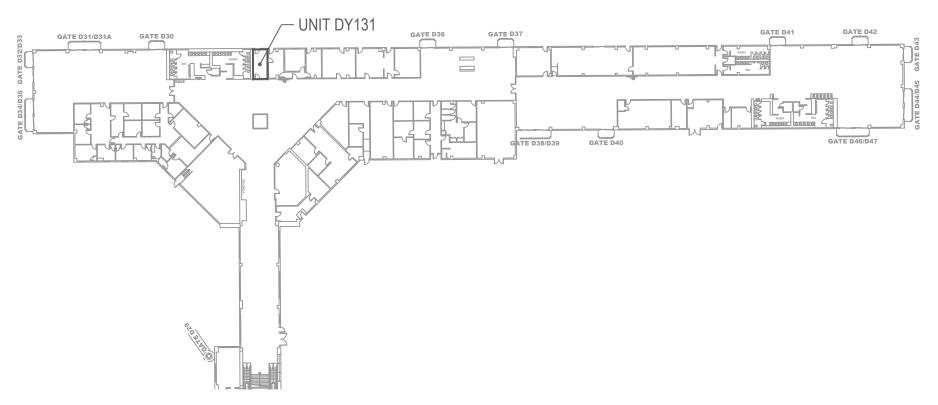




### Concourse DY - Lower Level (Level 1)



#### Commuter Concourse D - Lower Level (Level 1)



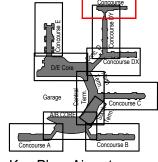
#### Concession Category

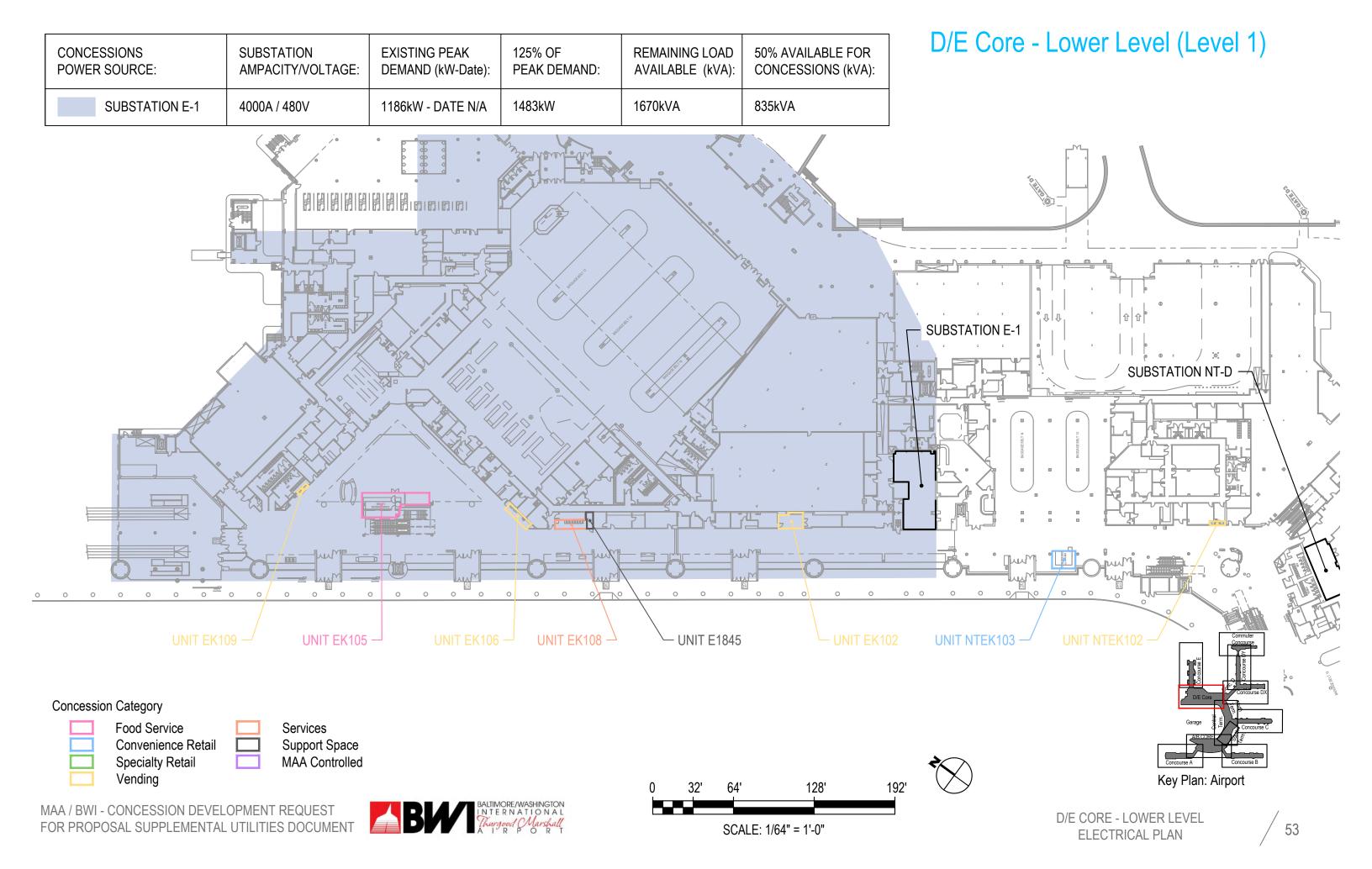


Services
Support Space
MAA Controlled

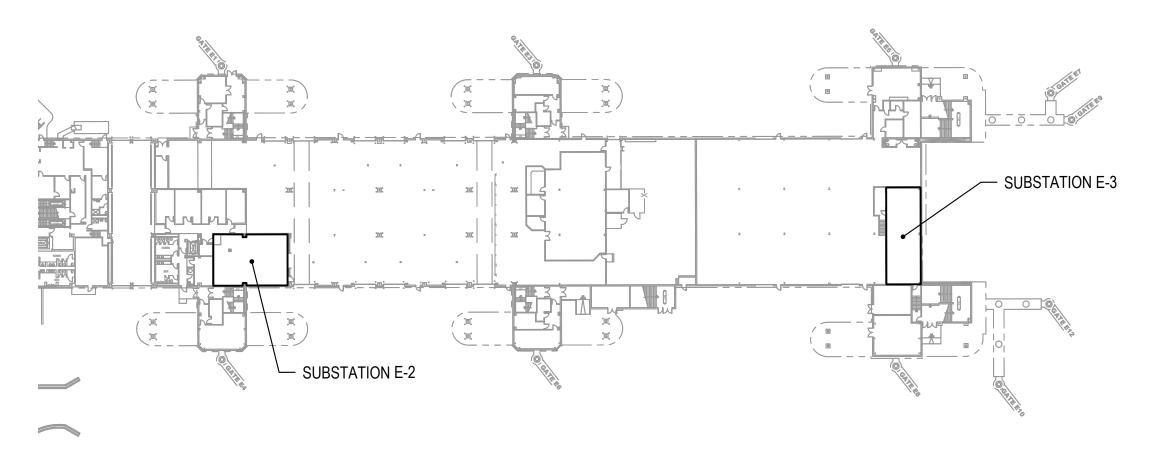




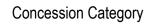




### Concourse E - Lower Level (Level 1)

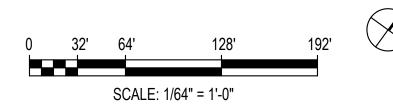


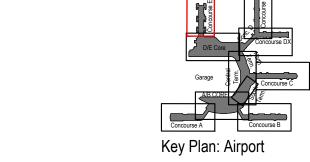
TE E2





BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall Ahargood Marshall

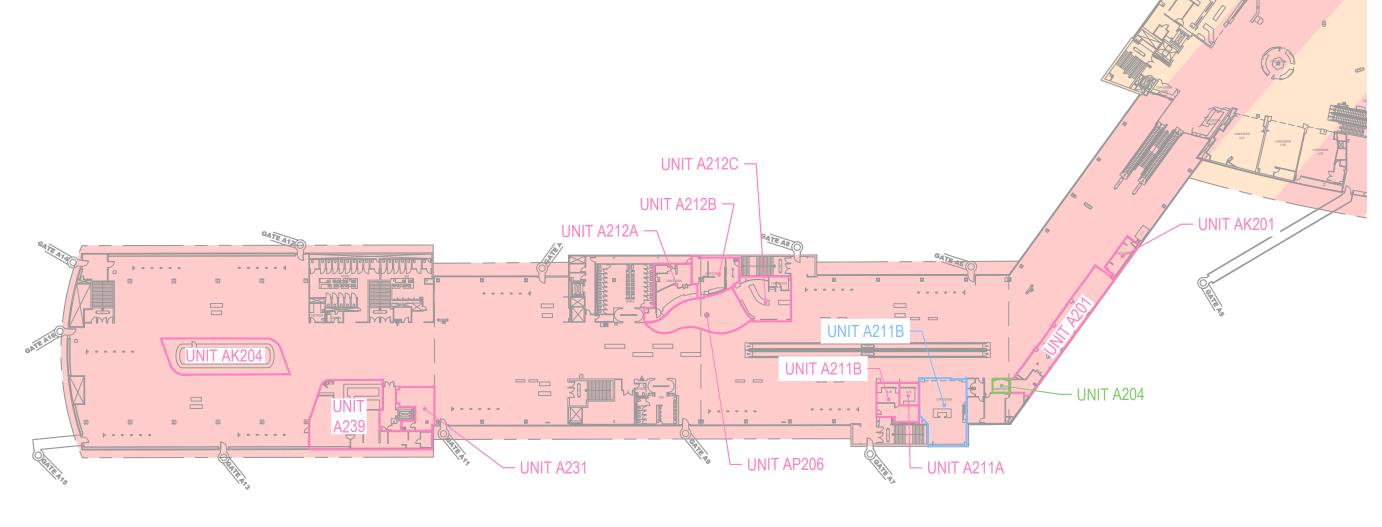




Services

Support Space MAA Controlled

## Concourse A - Upper Level (Level 2)



CONCESSIONS POWER SOURCE:	SUBSTATION AMPACITY/VOLTAGE:	EXISTING PEAK DEMAND (kW-Date):	125% OF PEAK DEMAND:	REMAINING LOAD AVAILABLE (kVA):	50% AVAILABLE FOR CONCESSIONS (kVA):
SUBSTATION A-1	4000A / 480V	1728kW - DATE N/A	2160kW	920kVA	460kVA
SUBSTATION B-2	4000A / 480V	638kW - DATE N/A	798kW	2430kVA	1215kVA

#### Concession Category

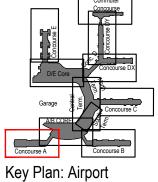
Food Service Convenience Retail Specialty Retail Vending

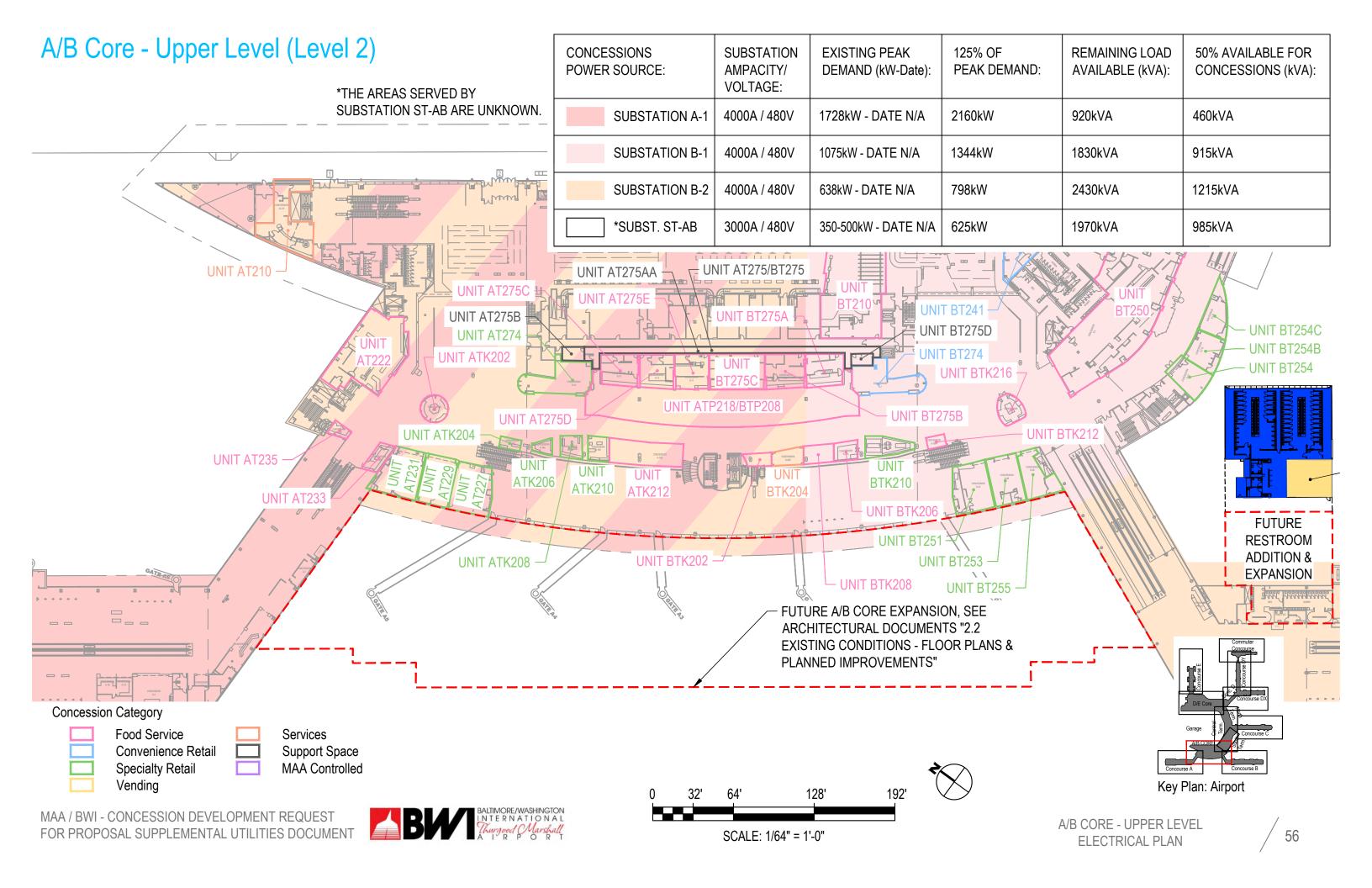
Services Support Space

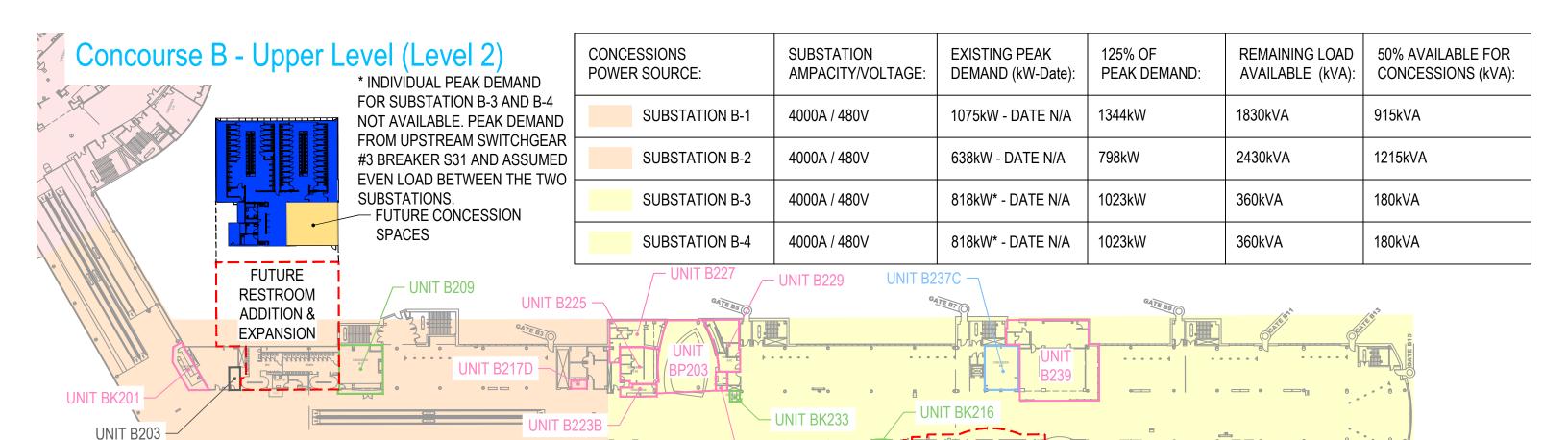
MAA Controlled











**FUTURE RESTROOM** 

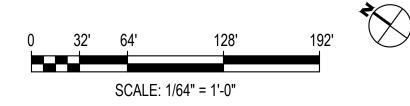
**ADDITION & EXPANSION** 

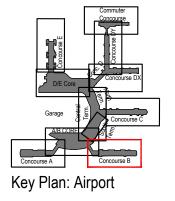




UNIT B216B

UNIT B216

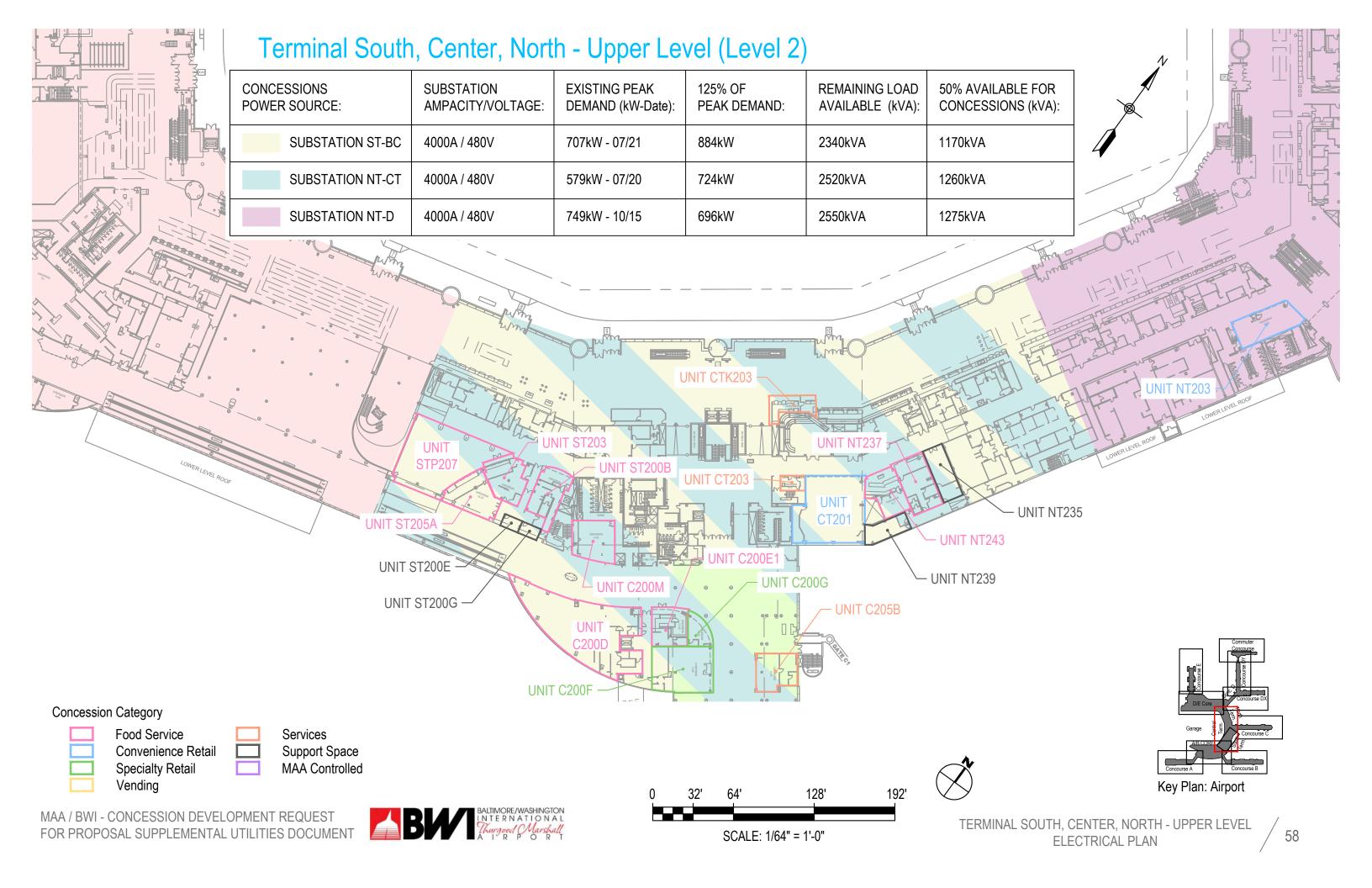




CONCOURSE B - UPPER LEVEL **ELECTRICAL PLAN** 

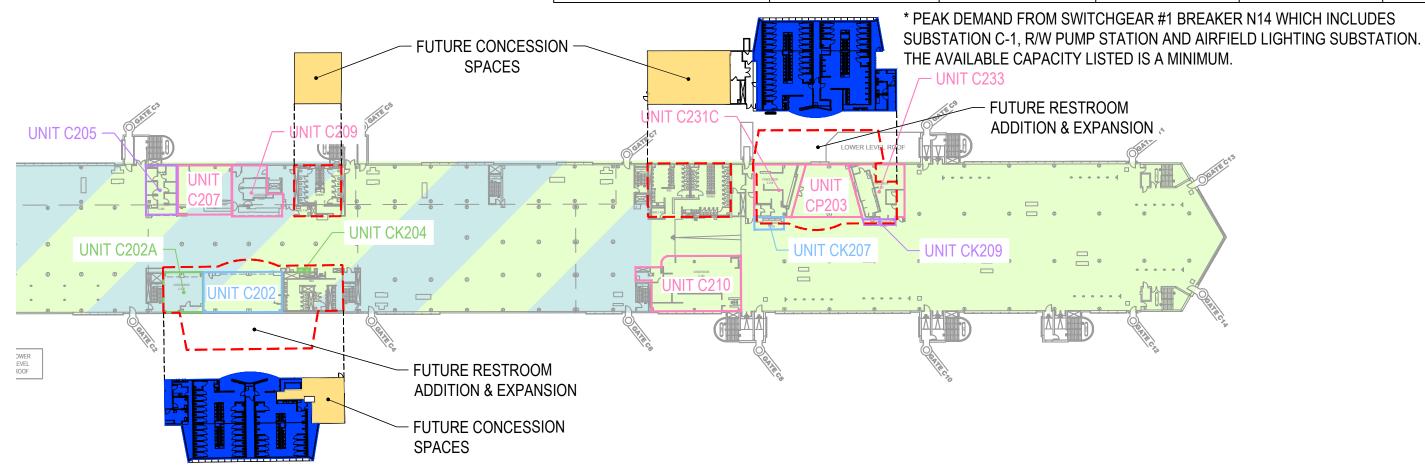
**└**─ UNIT B240

GATE B2



#### Concourse C - Upper Level (Level 2)

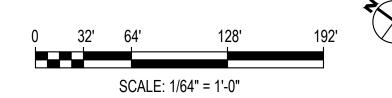
CONCESSIONS POWER SOURCE:	SUBSTATION AMPACITY/VOLTAGE:	EXISTING PEAK DEMAND (kW-Date):	125% OF PEAK DEMAND:	REMAINING LOAD AVAILABLE (kVA):	50% AVAILABLE FOR CONCESSIONS (kVA):
SUBSTATION NT-CT	4000A / 480V	579kW - 07/20	724kW	2520kVA	1260kVA
SUBSTATION C-1	4000A / 480V	1941kW* - DATE N/A	2426kW	620kVA*	310kVA

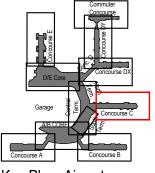


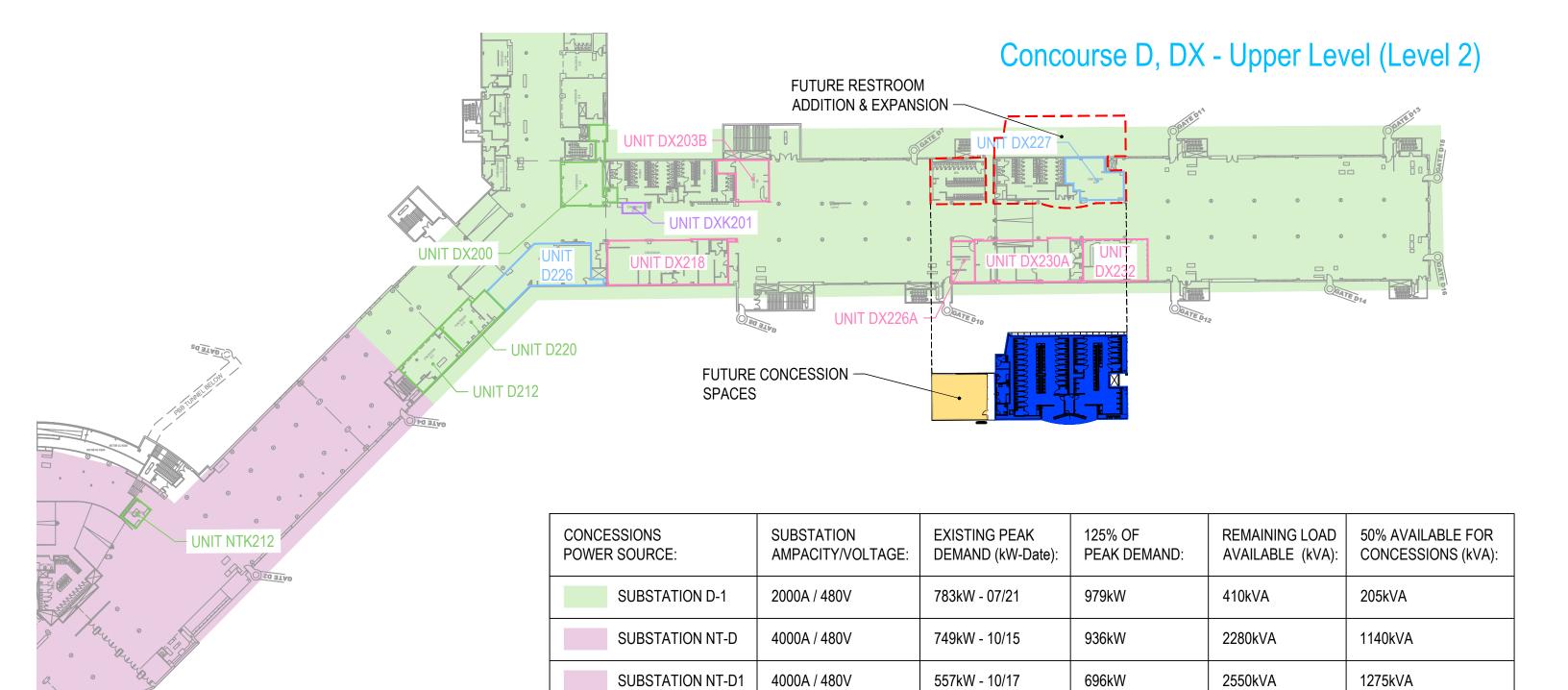


MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT











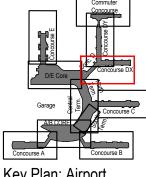
Food Service Convenience Retail Specialty Retail Vending

Services

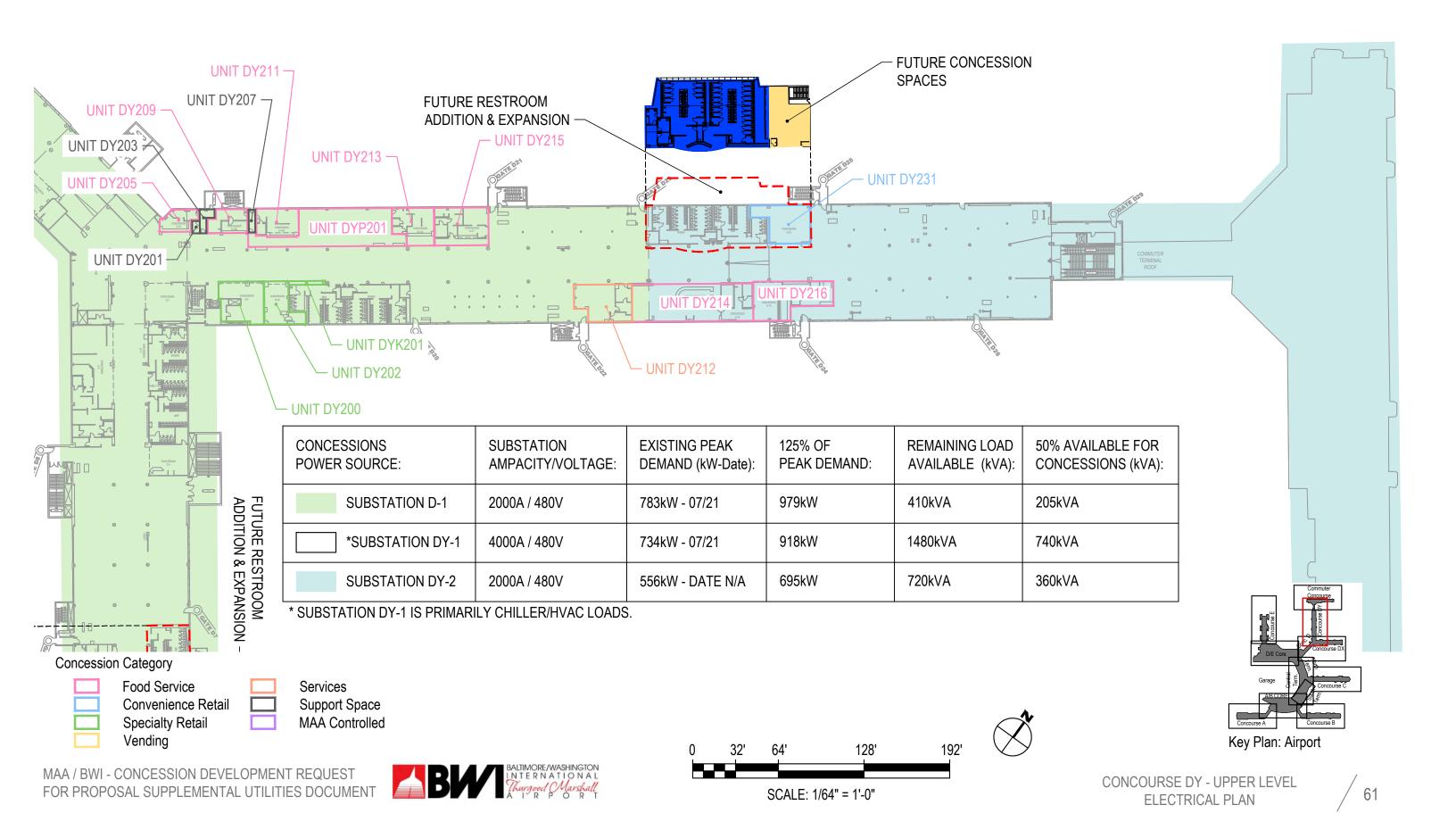
Support Space MAA Controlled

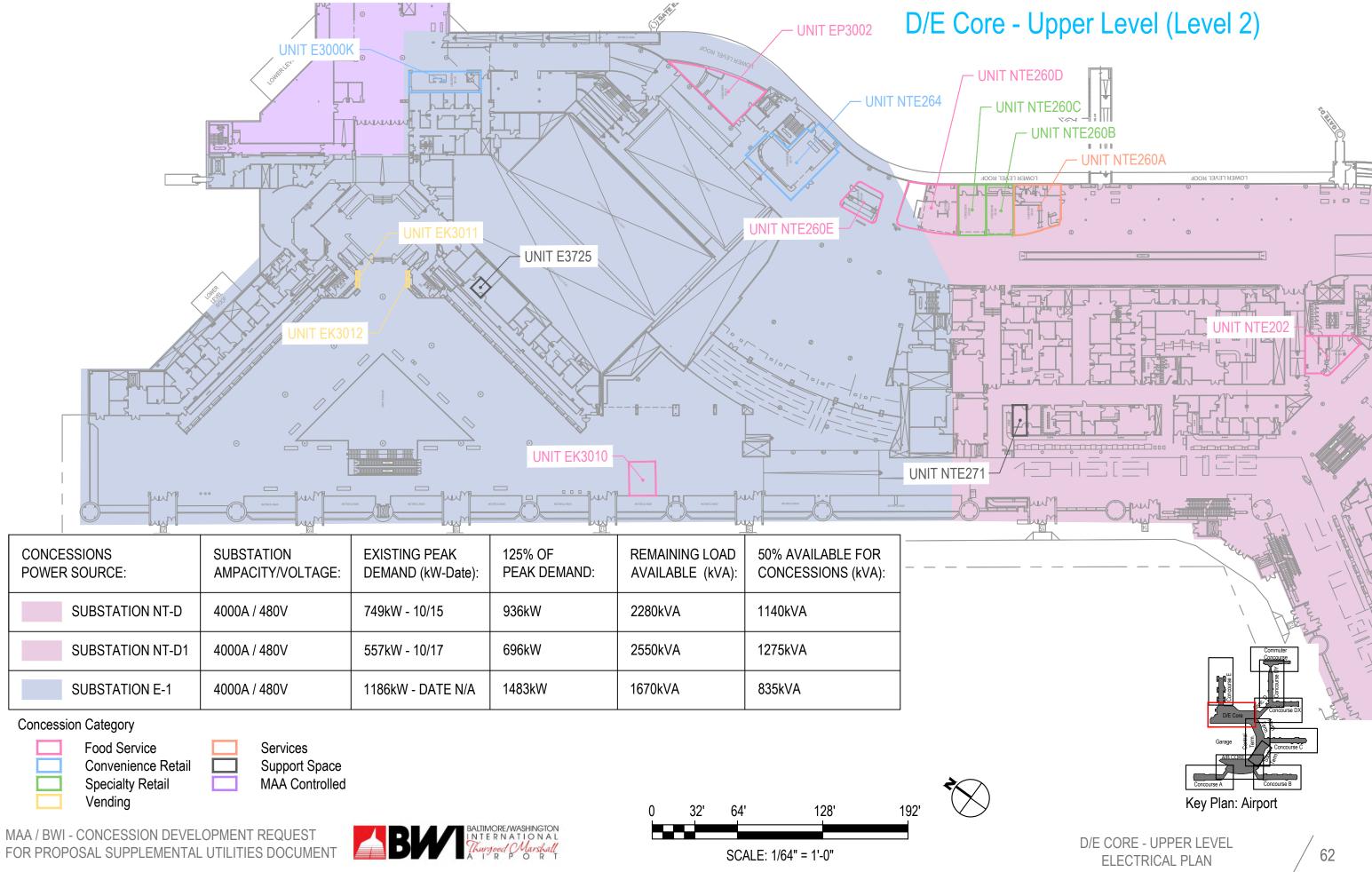




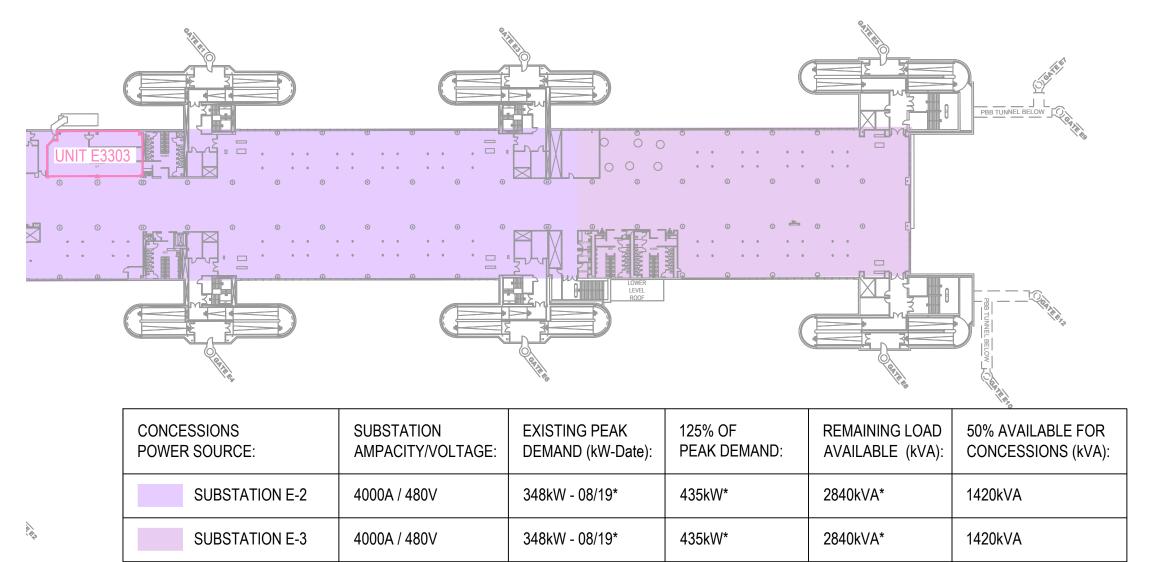


#### Concourse DY - Upper Level (Level 2)





## Concourse E - Upper Level (Level 2)



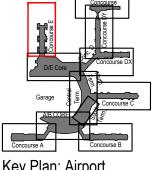
<sup>\*</sup> PEAK DEMAND FOR SWITCHGEAR #2 BREAKER S22 WHICH INCLUDES BOTH SUBSTATION E-2 AND E-3.

## **Concession Category**

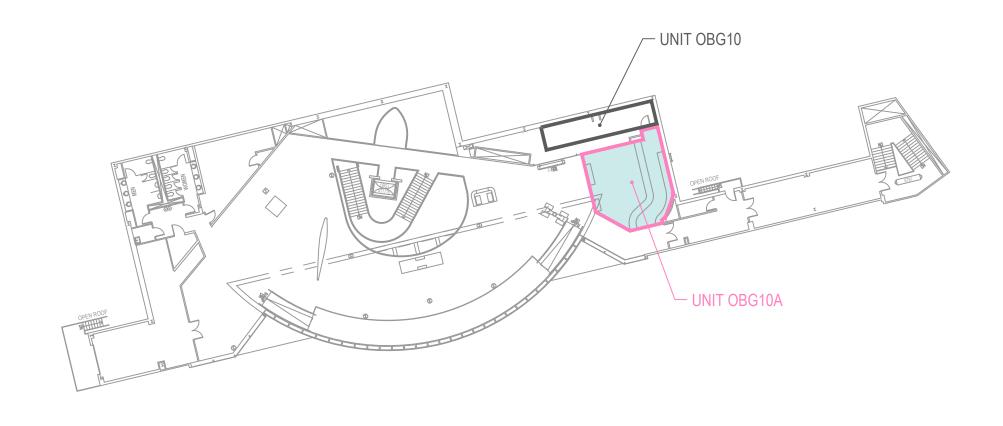
Food Service Services Convenience Retail Support Space MAA Controlled Specialty Retail Vending







# Terminal Observation Gallery - Upper Level Mezzanine



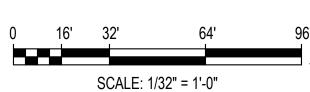
CONCESSIONS	SUBSTATION	EXISTING PEAK	125% OF	REMAINING LOAD	50% AVAILABLE FOR
POWER SOURCE:	AMPACITY/VOLTAGE:	DEMAND (kW-Date):	PEAK DEMAND:	AVAILABLE (kVA):	CONCESSIONS (kVA):
SUBSTATION NT-CT	4000A / 480V	579kW - 07/20	724kW	2520kVA	1260kVA

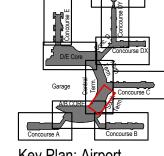
## Concession Category

Food Service Convenience Retail Specialty Retail Vending

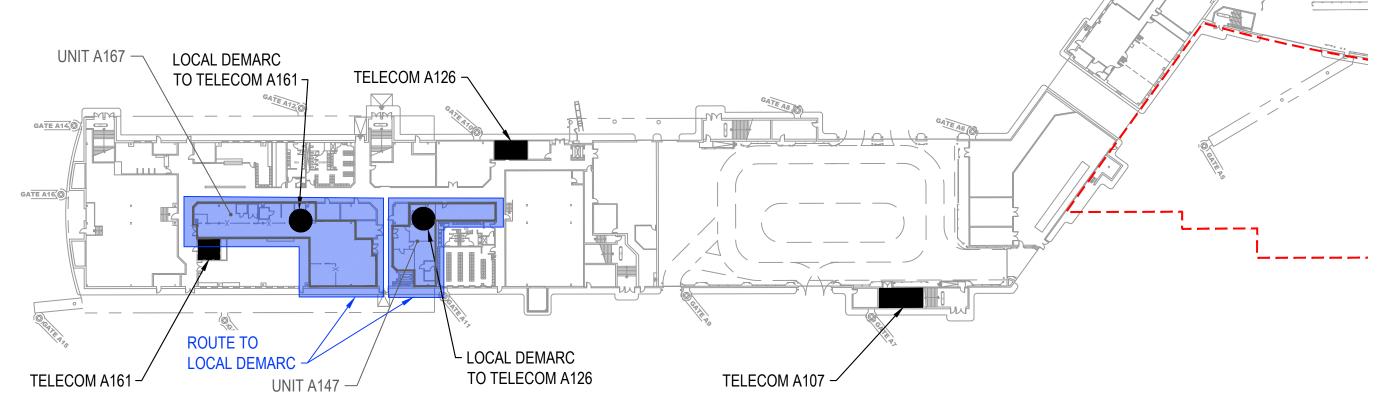
Services Support Space MAA Controlled

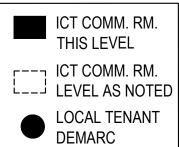






## Concourse A - Ground Level (Level 1a)





**ICT LEGEND** 

#### **GENERAL NOTES:**

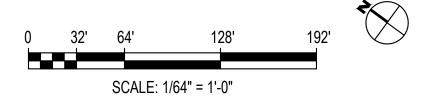
- 1. APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS USED BY CONCESSIONS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

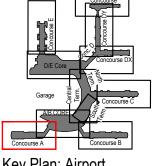
## **Concession Category**









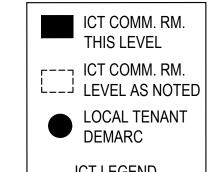


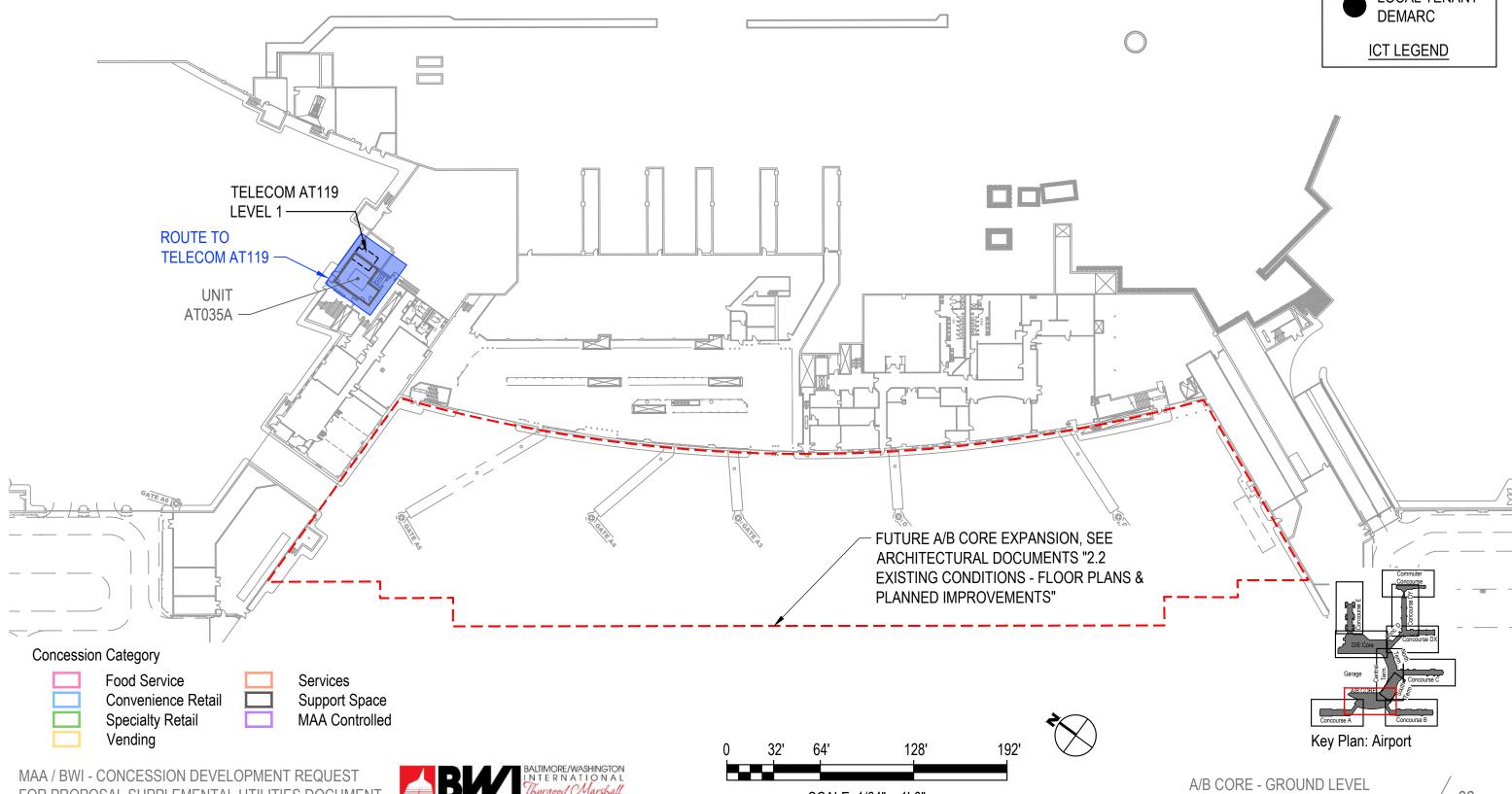
Key Plan: Airport

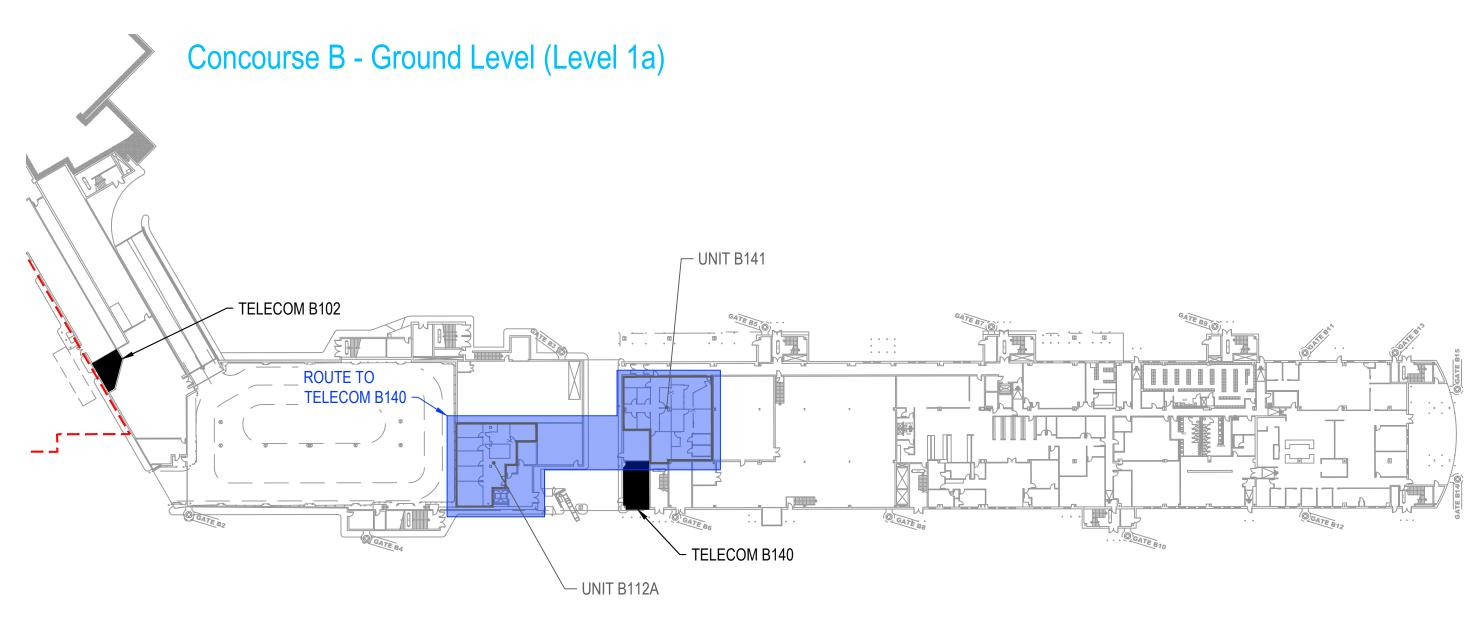
## A/B Core - Ground Level (Level 1a)

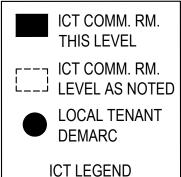
#### **GENERAL NOTES:**

- APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS USED BY CONCESSIONS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.









#### **GENERAL NOTES:**

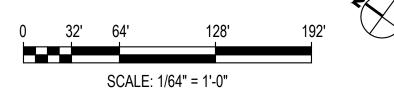
- APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS USED BY CONCESSIONS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- 2. SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

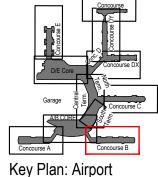
## **Concession Category**

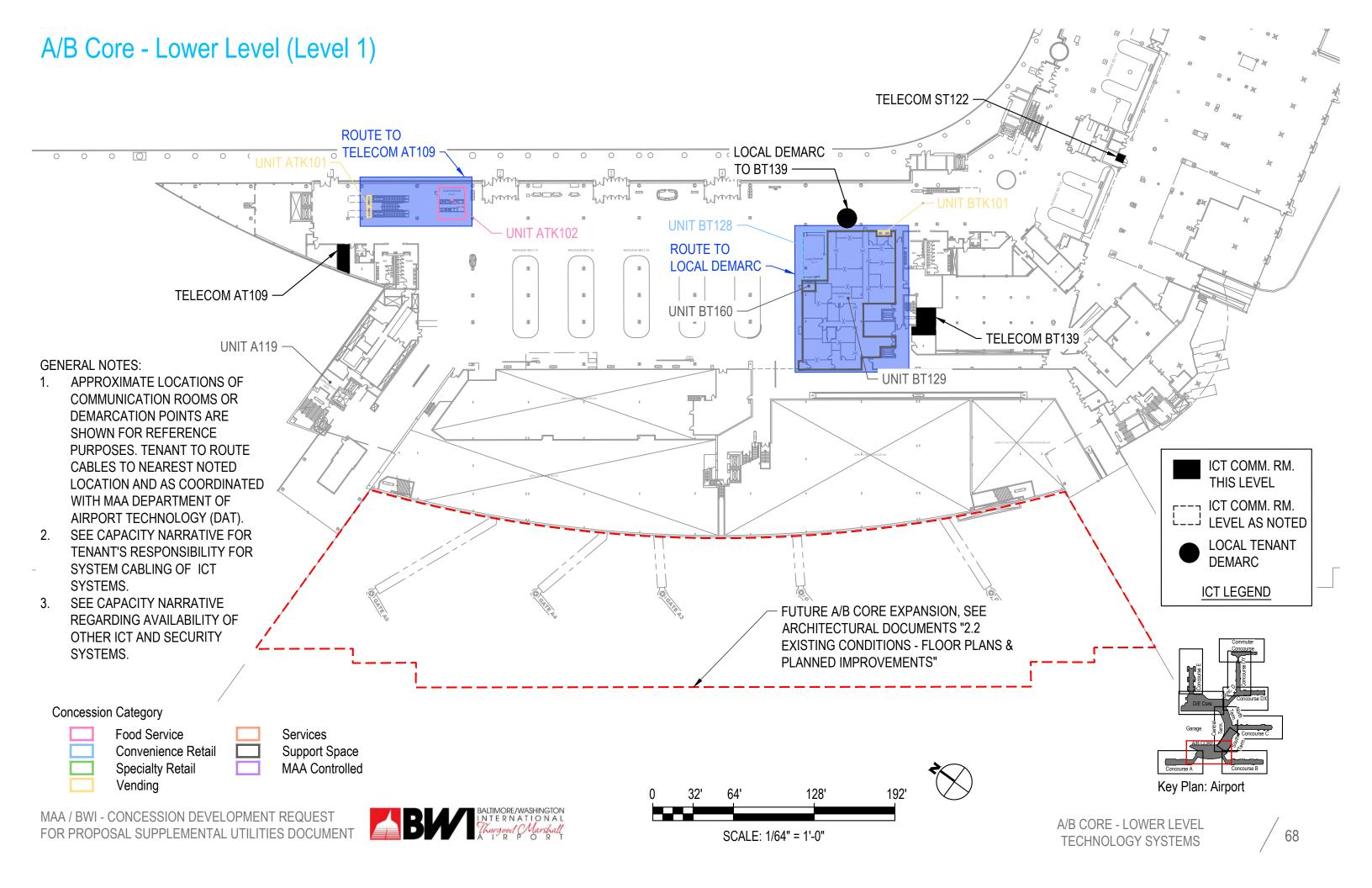


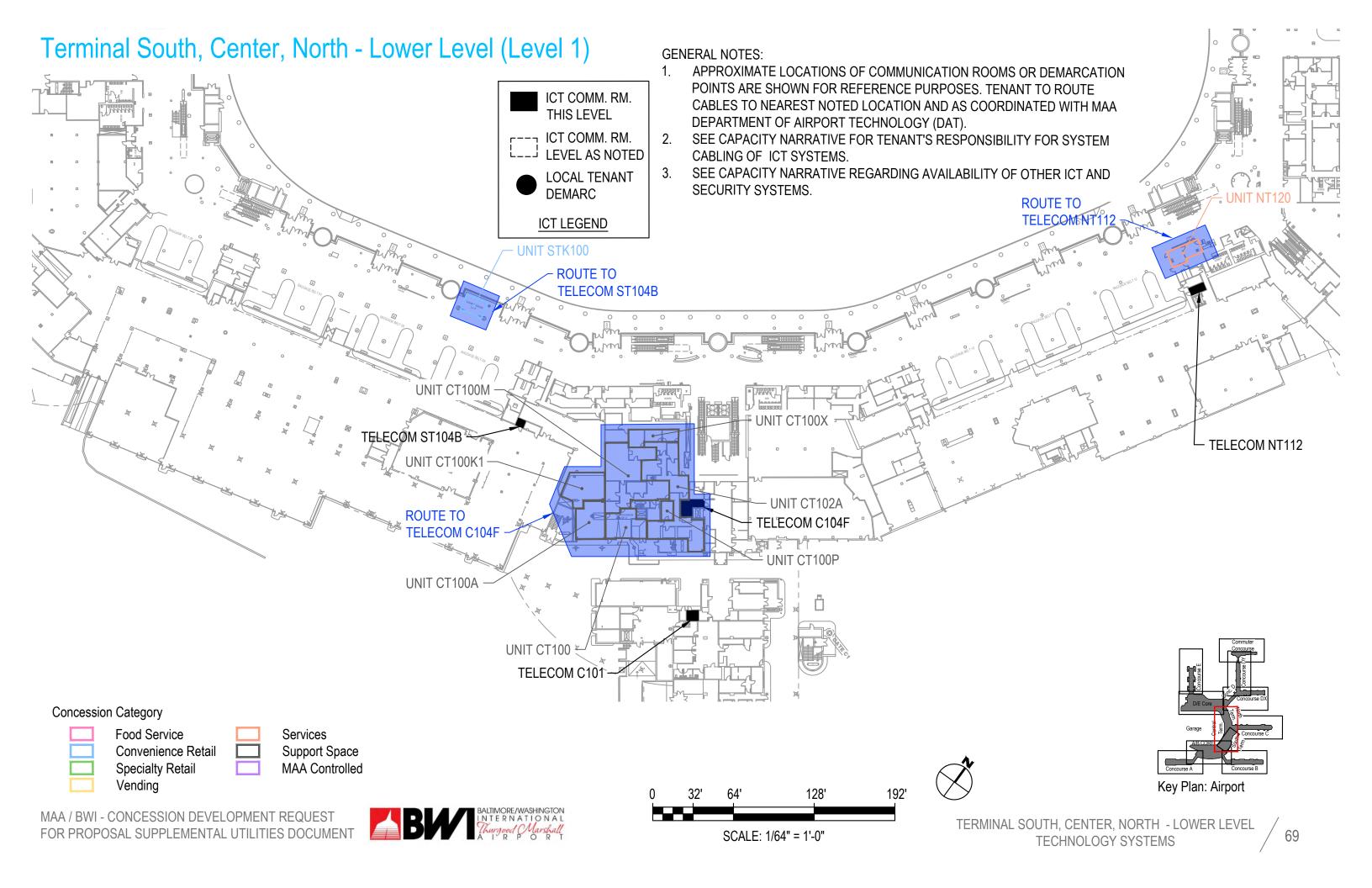
Services Support Space MAA Controlled



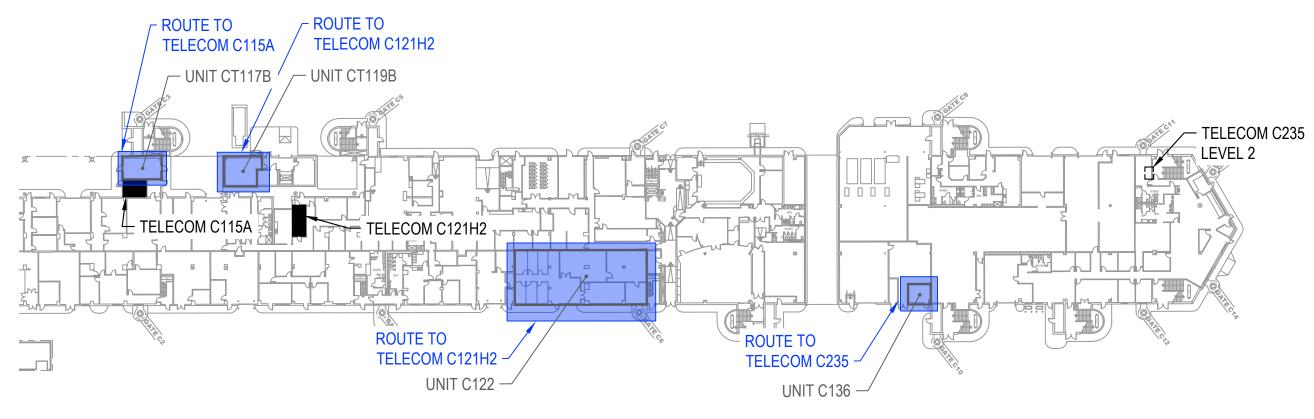


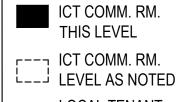






## Concourse C - Lower Level (Level 1)





LOCAL TENANT DEMARC

**ICT LEGEND** 

#### **GENERAL NOTES:**

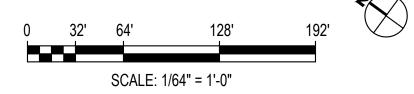
- 1. APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

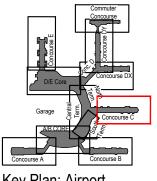
## **Concession Category**

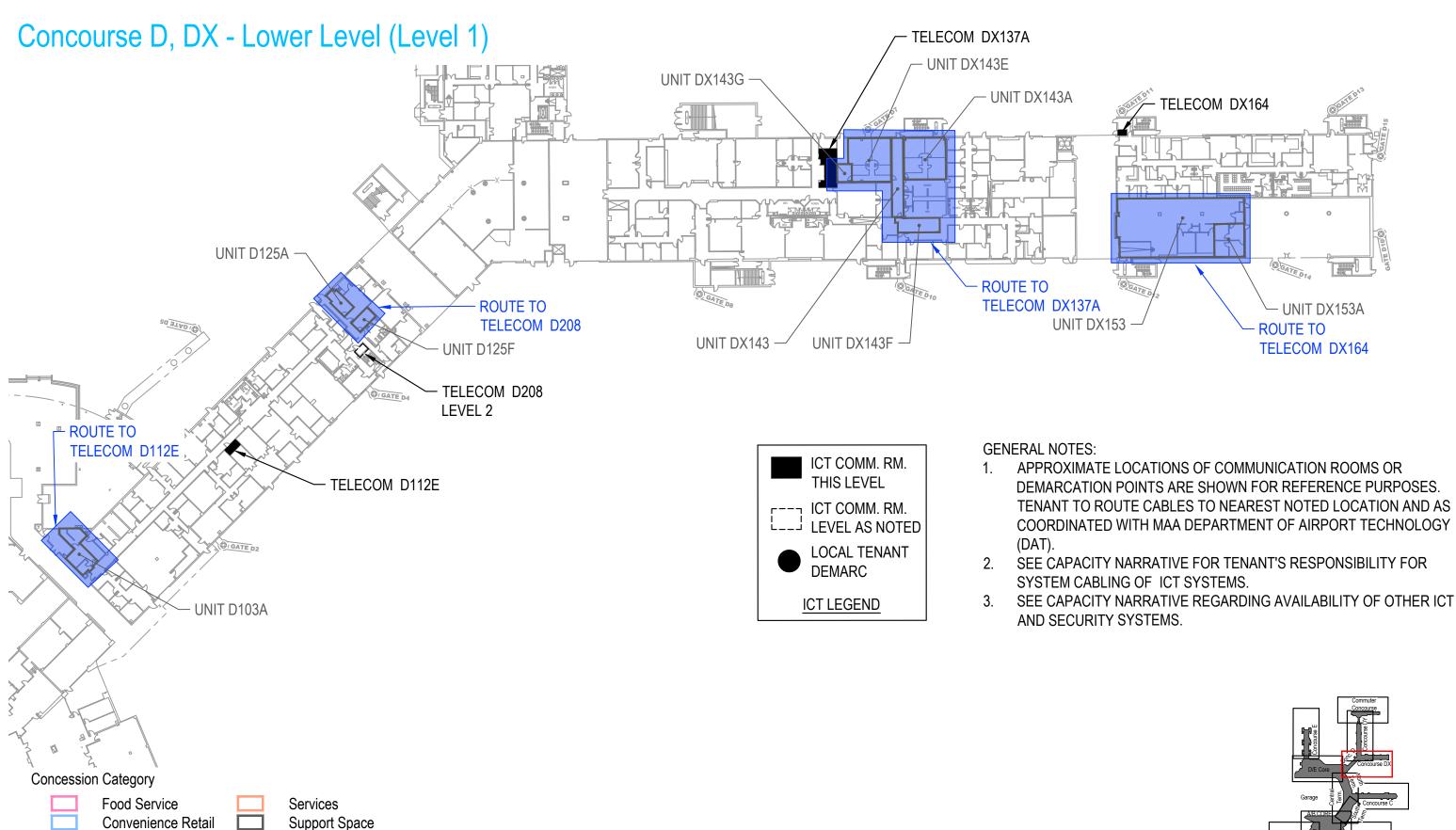
Food Service Convenience Retail Specialty Retail Vending











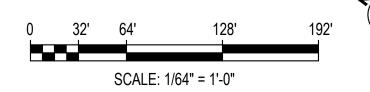
MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT

MAA Controlled

Specialty Retail

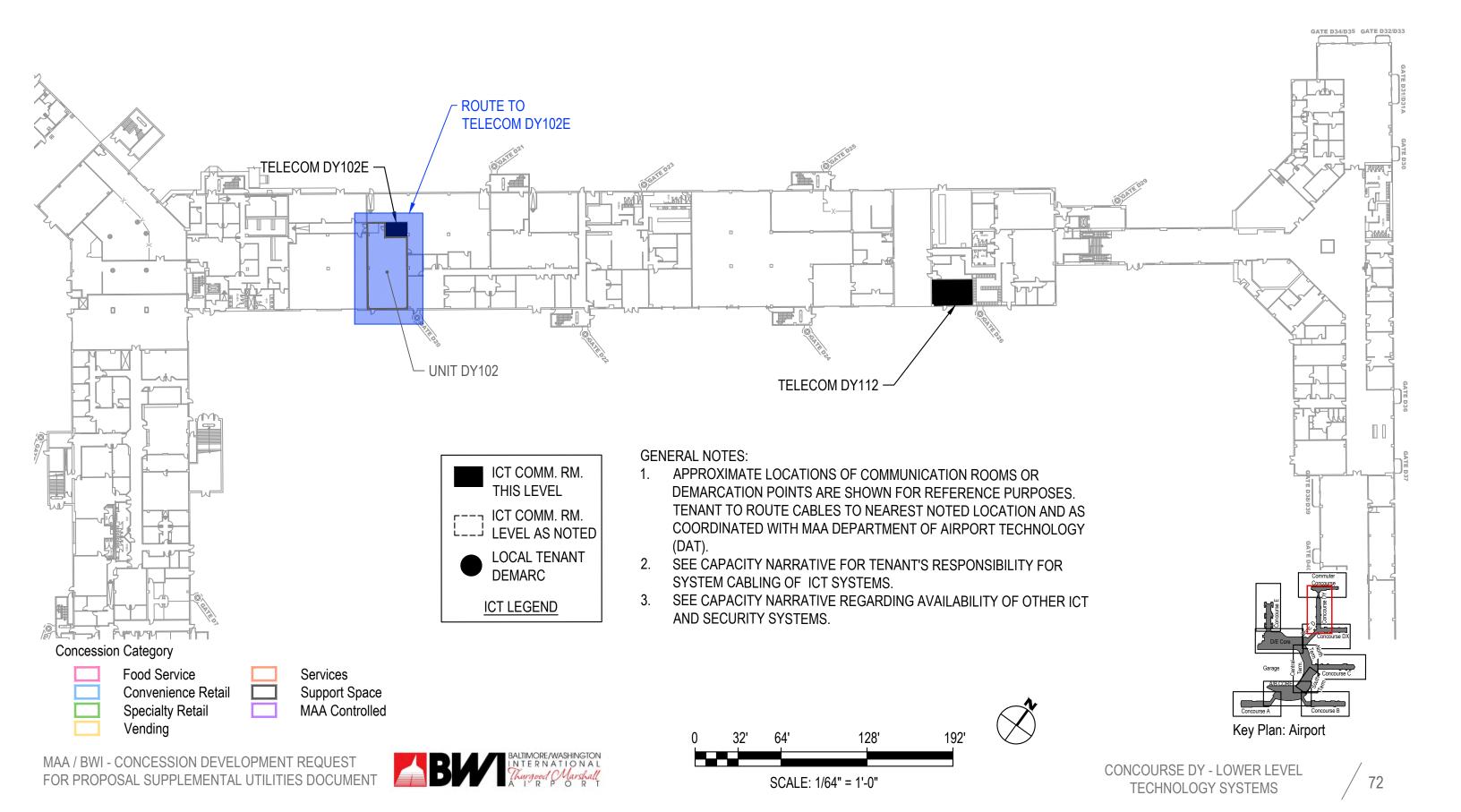
Vending



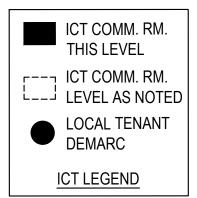




## Concourse DY - Lower Level (Level 1)

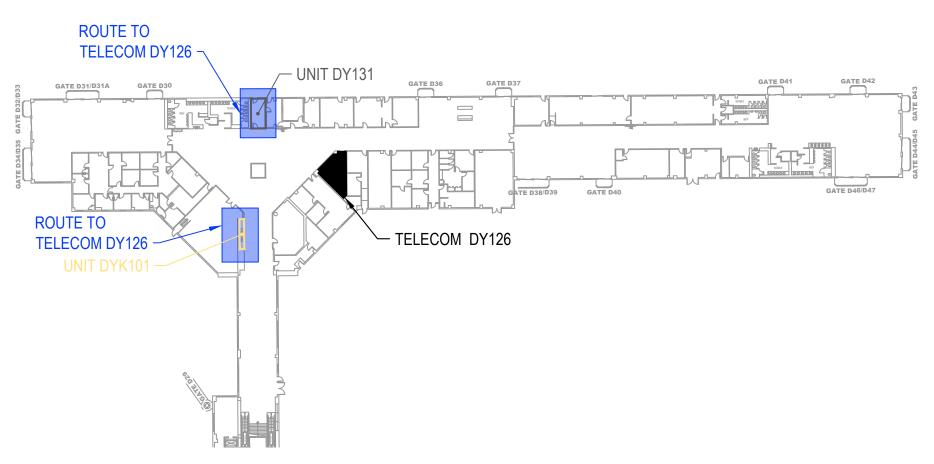


## Commuter Concourse D - Lower Level (Level 1)



#### **GENERAL NOTES:**

- 1. APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- 2. SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- 3. SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

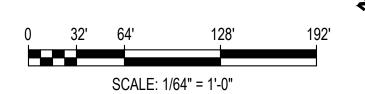


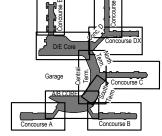
## **Concession Category**

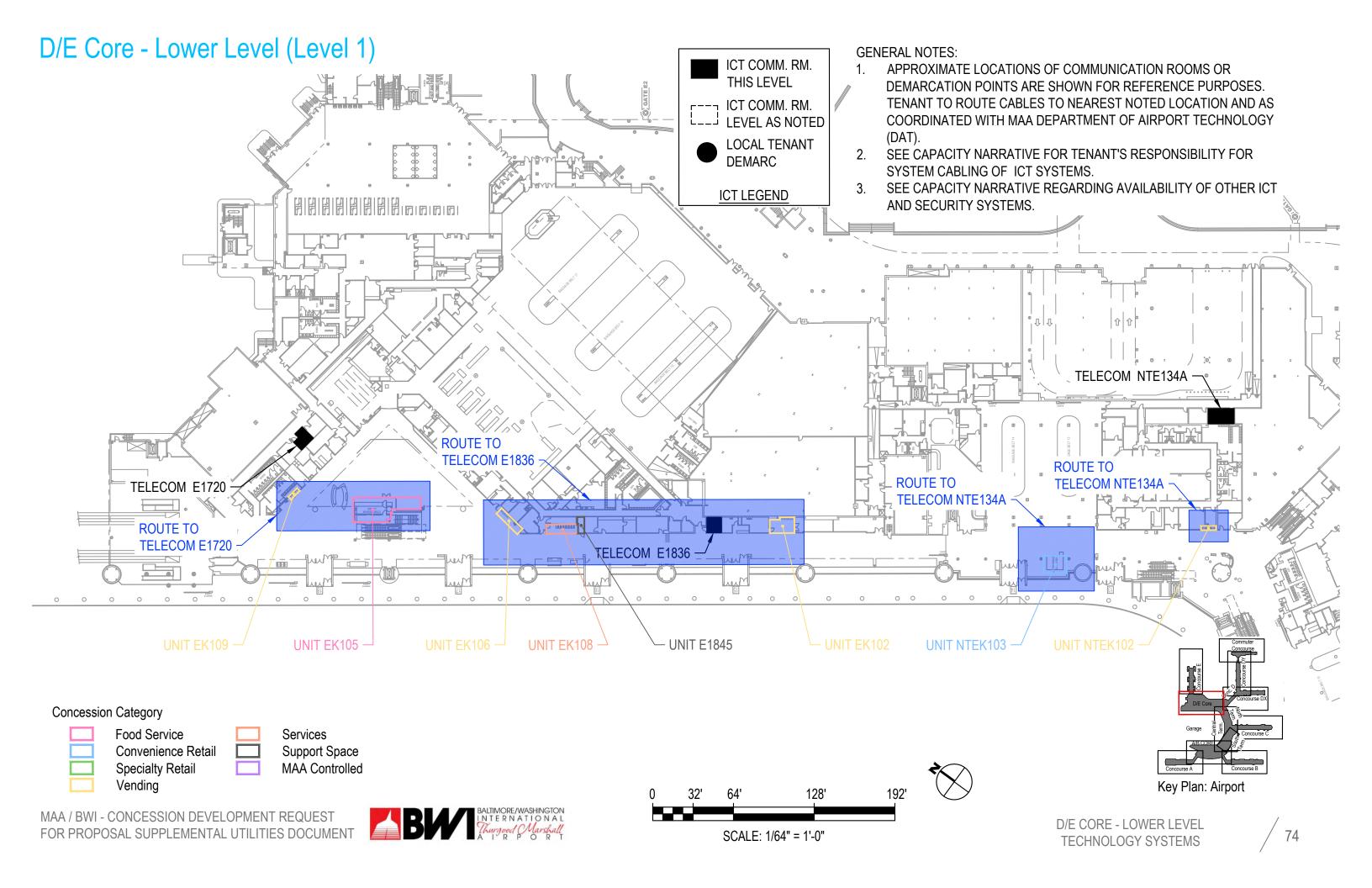


Services
Support Space
MAA Controlled

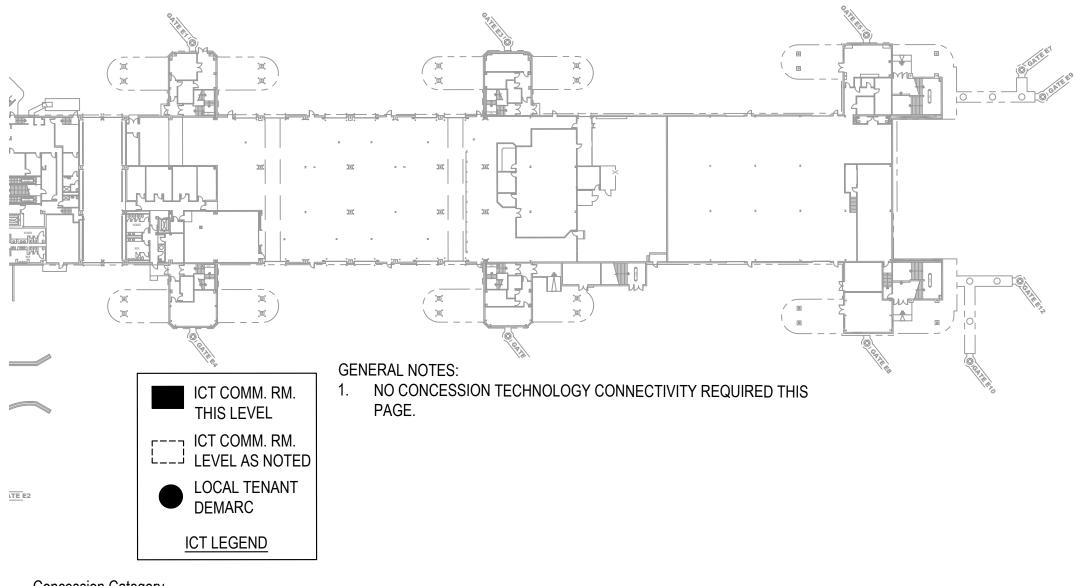








# Concourse E - Lower Level (Level 1)

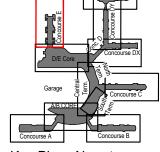


## Concession Category

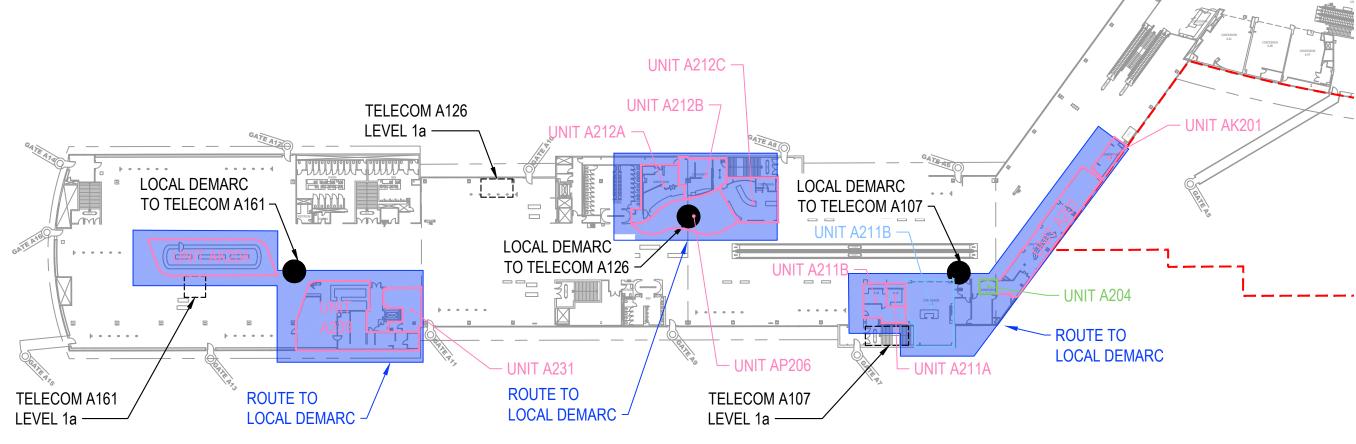


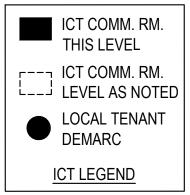
BALTIMORE/WASHINGTON
INTERNATIONAL
Thurgood Marshall
A R PORT





## Concourse A - Upper Level (Level 2)





#### **GENERAL NOTES:**

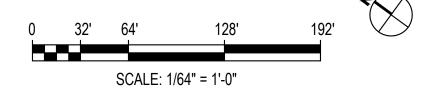
- APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS USED BY CONCESSIONS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- 2. SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- 3. SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

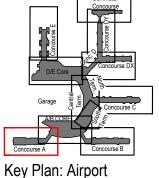
## **Concession Category**



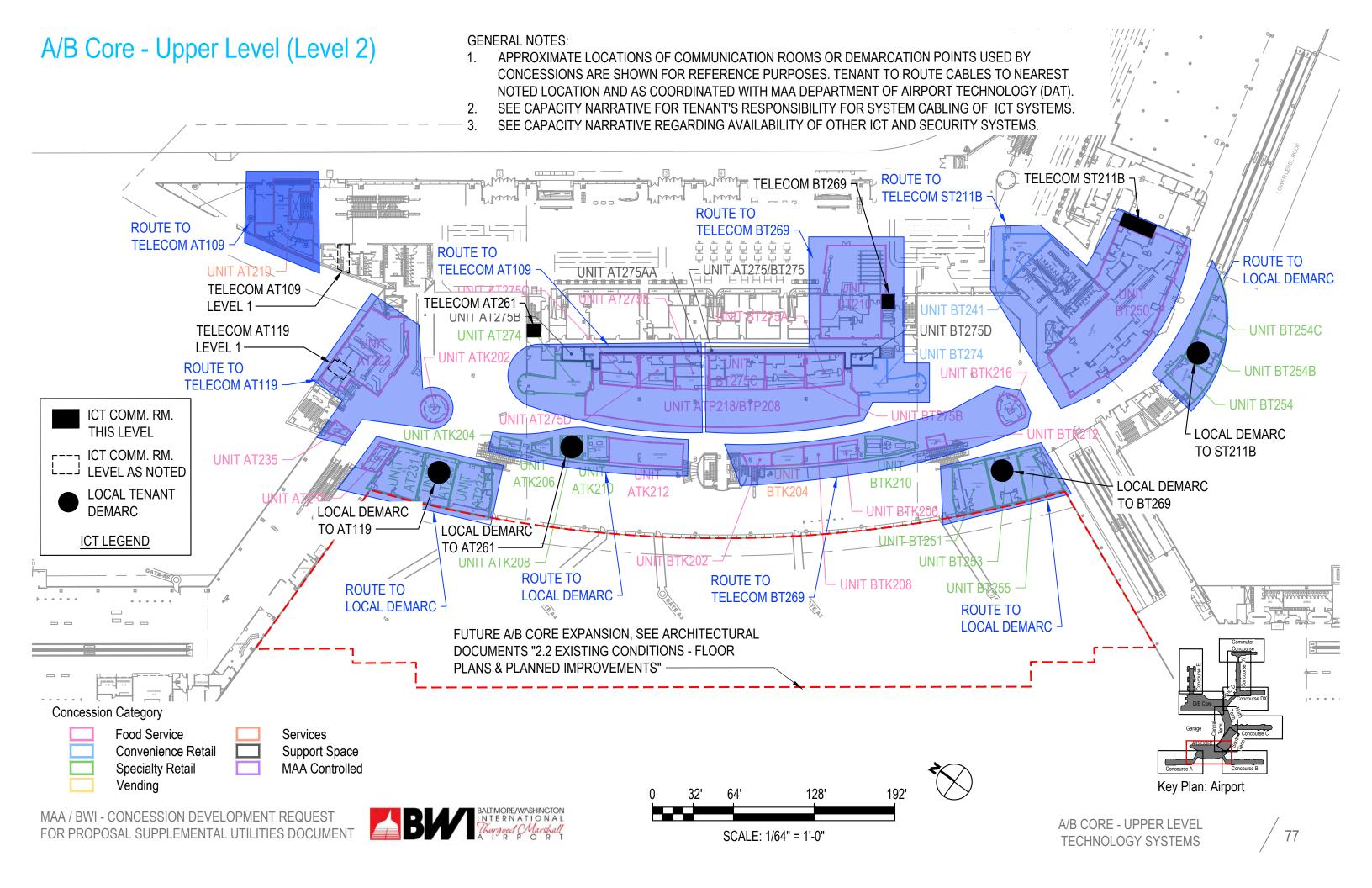
Services
Support Space
MAA Controlled

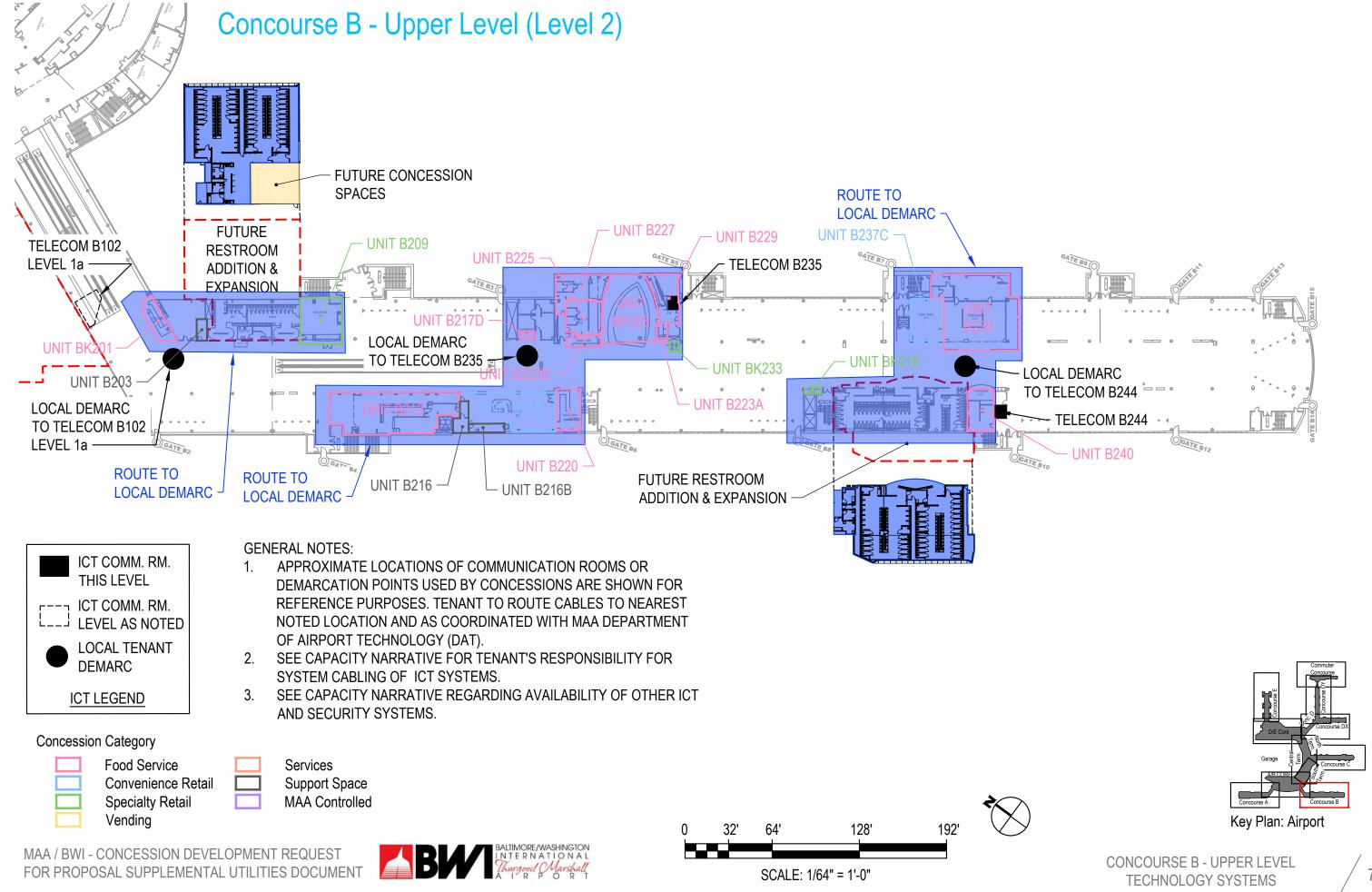






,

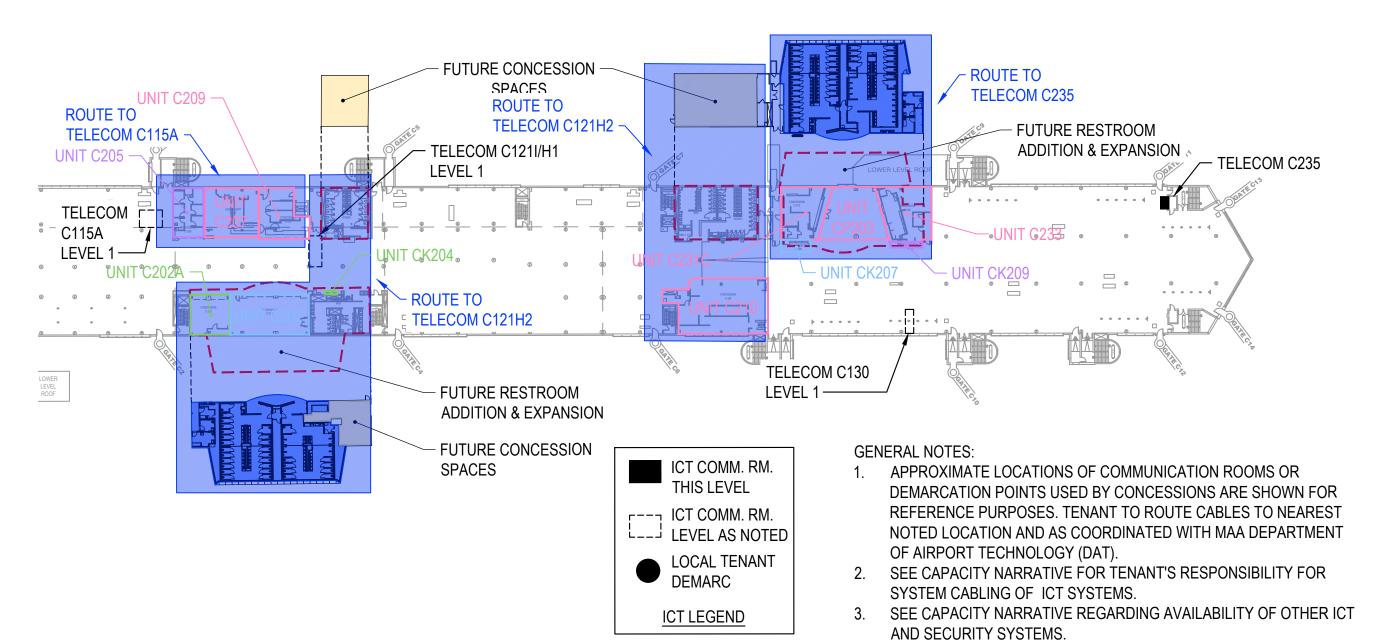




#### Terminal South, Center, North - Upper Level (Level 2) **GENERAL NOTES:** ICT COMM. RM. APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR THIS LEVEL DEMARCATION POINTS USED BY CONCESSIONS ARE SHOWN FOR r--¬ ICT COMM. RM. REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST L--- LEVEL AS NOTED NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT). LOCAL TENANT SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR DEMARC SYSTEM CABLING OF ICT SYSTEMS. ICT LEGEND SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT TELECOM NT204 AND SECURITY SYSTEMS. TENANT DEMARC ROUTE TO TO TELECOM ST204 LOCAL DEMARC TENANT DEMARC TO TELECOM NT222 TELECOM ST204 **UNIT CTK203** ROUTE TO LOCAL DEMARC **ROUTE TO** TELECOM NT204 ✓ TELECOM NT222 UNIT CT203 UNIT NT235 ─ UNIT NT243 UNIT ST200E UNIT NT239 d200G UNIT ST200G - UNIT C205B **ROUTE TO** LOCAL DEMARC TENANT DEMARC TELECOM C101 TO TELECOM C101 LEVEL 1 UNIT C200F **Concession Category** Food Service Services Convenience Retail Support Space Specialty Retail MAA Controlled Vending Key Plan: Airport 128' MAA / BWI - CONCESSION DEVELOPMENT REQUEST TERMINAL SOUTH, CENTER, NORTH - UPPER LEVEL FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT SCALE: 1/64" = 1'-0"

**TECHNOLOGY SYSTEMS** 

## Concourse C - Upper Level (Level 2)



## **Concession Category**

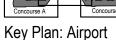


Services
Support Space
MAA Controlled

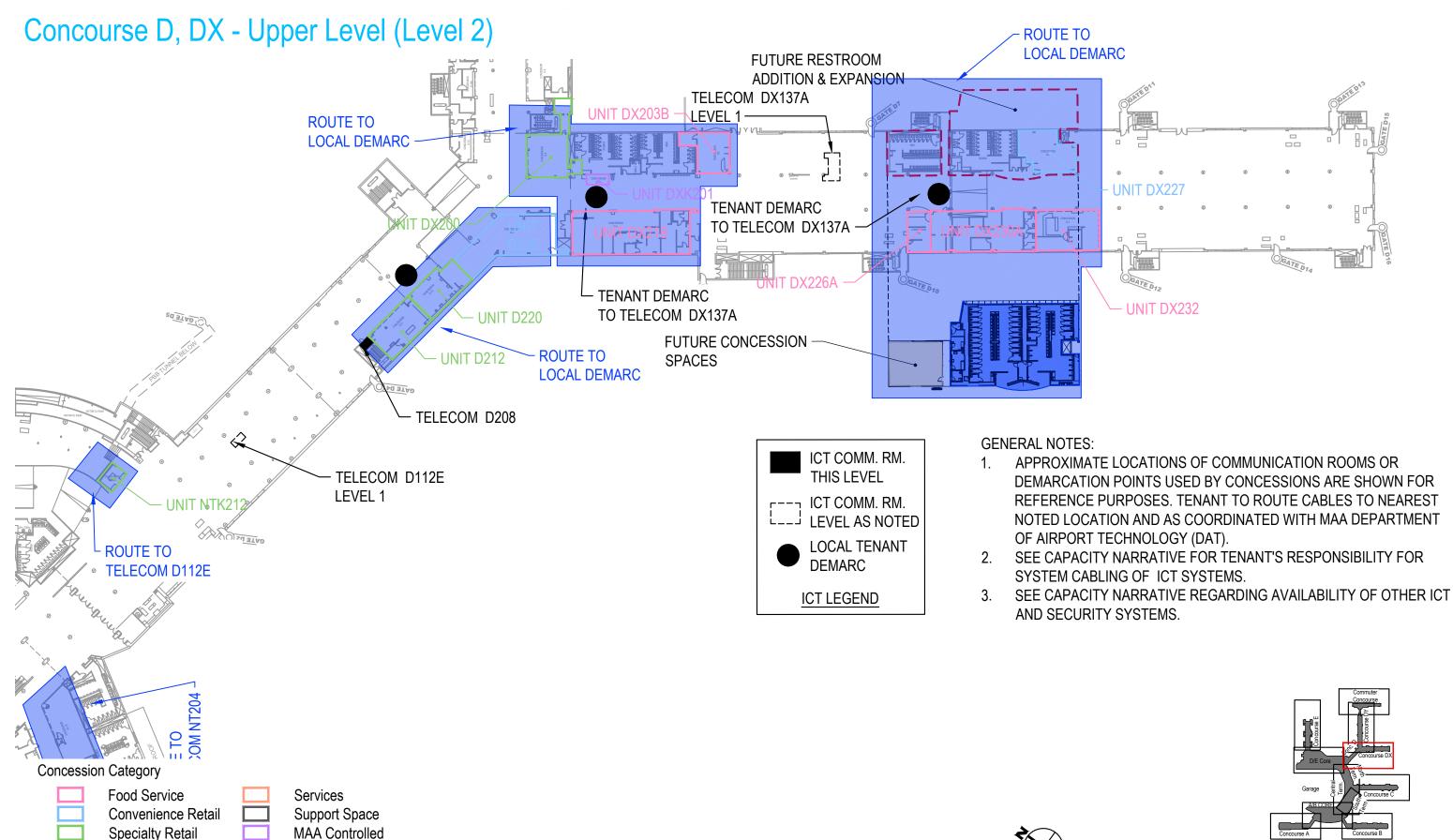
0 32' 64' 128'

SCALE: 1/64" = 1'-0"









MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT

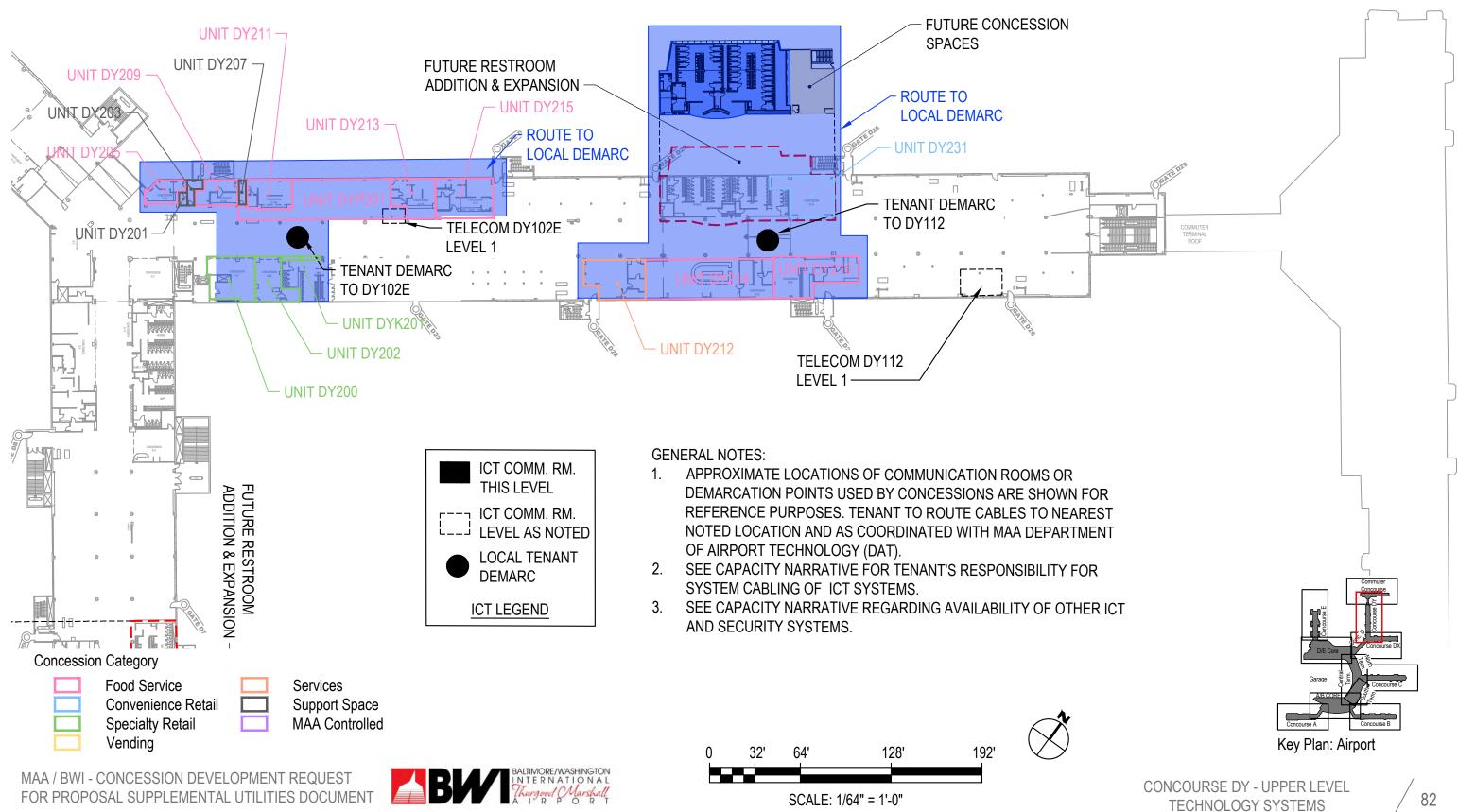
Vending



# 128' SCALE: 1/64" = 1'-0"

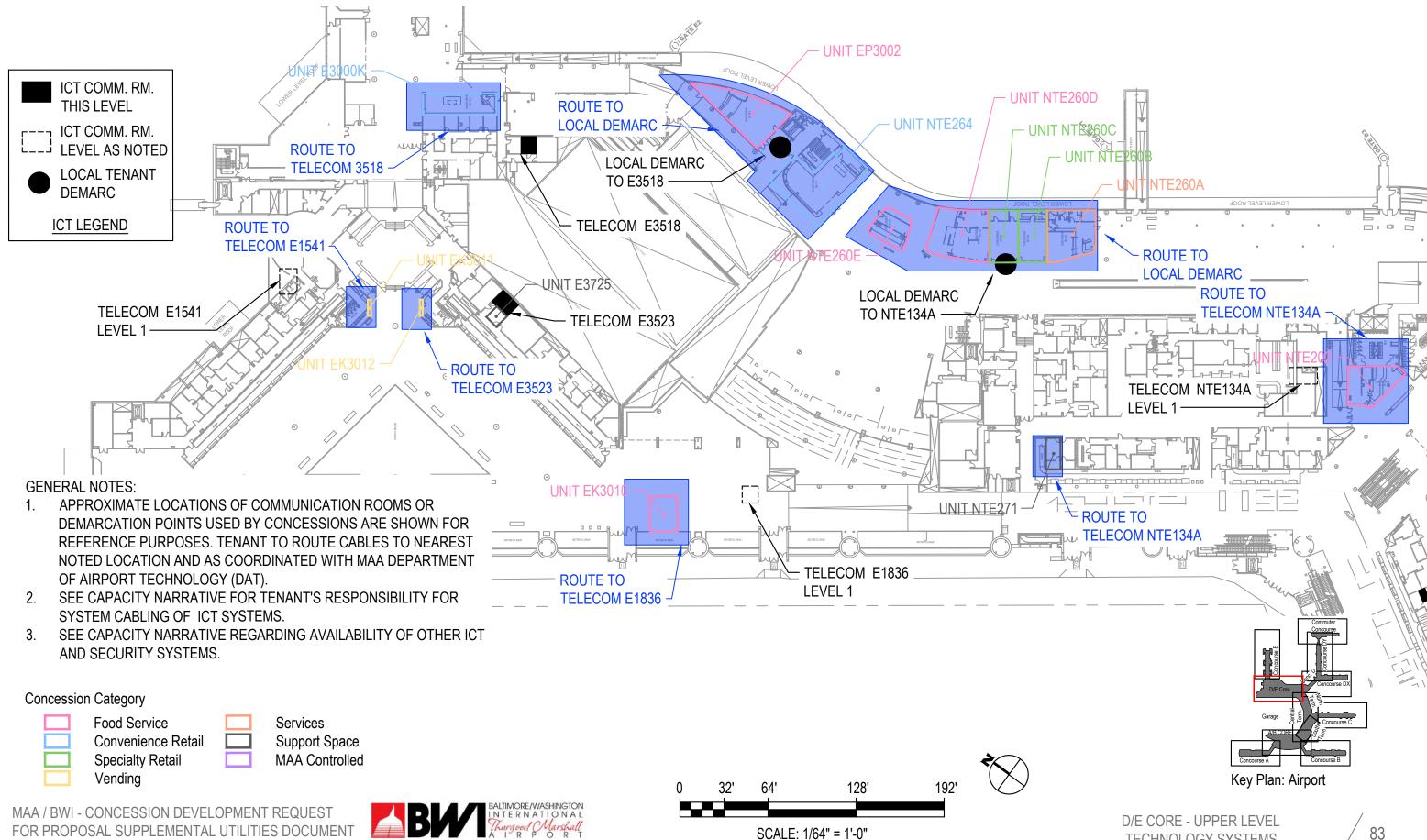
Key Plan: Airport

## Concourse DY - Upper Level (Level 2)





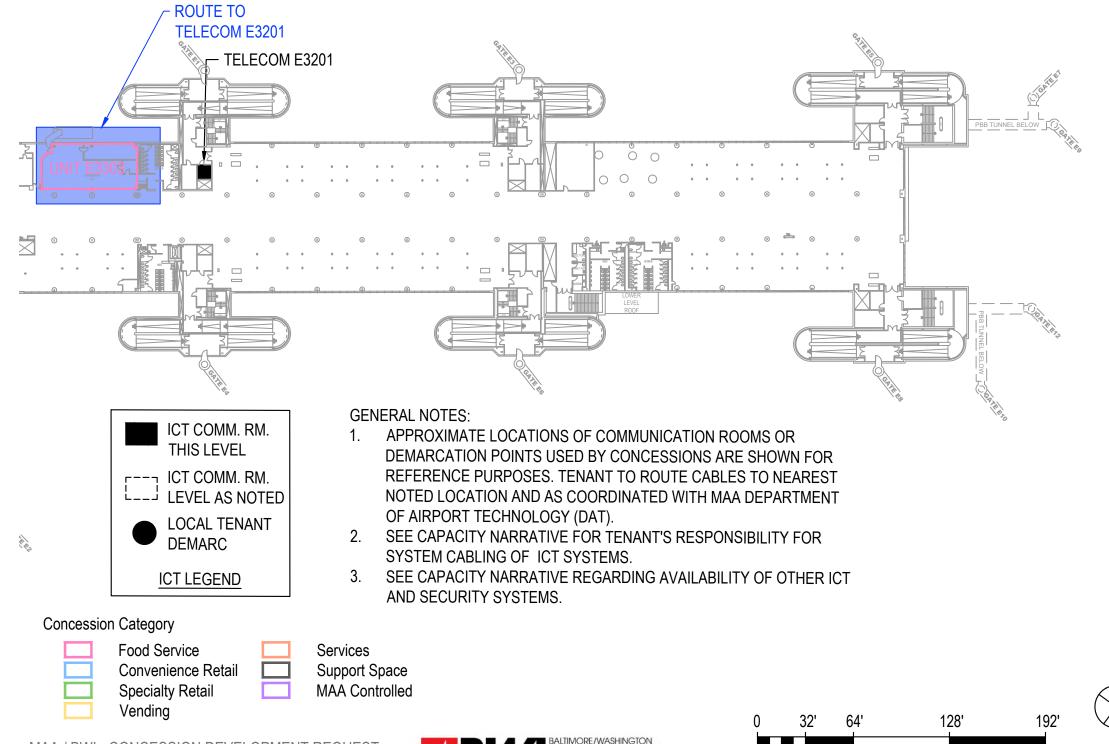
## D/E Core - Upper Level (Level 2)



FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT



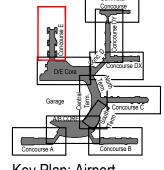
## Concourse E - Upper Level (Level 2)



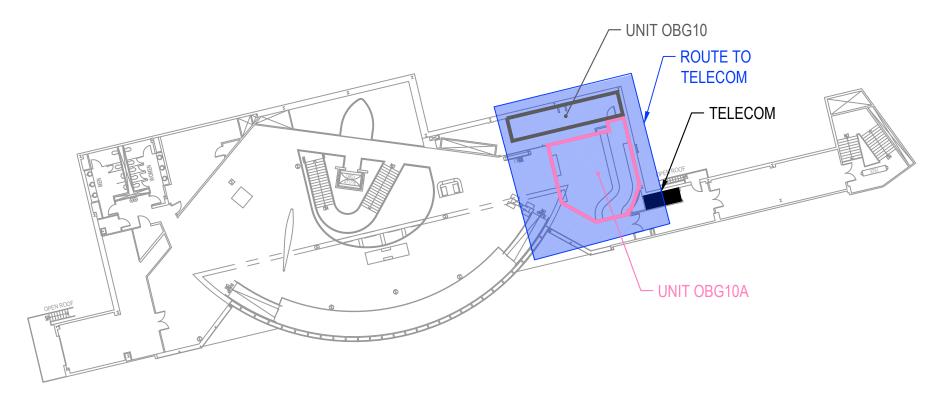
MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT

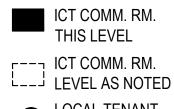






## Terminal Observation Gallery - Upper Level Mezzanine





LOCAL TENANT DEMARC

**ICT LEGEND** 

#### **GENERAL NOTES:**

- APPROXIMATE LOCATIONS OF COMMUNICATION ROOMS OR DEMARCATION POINTS ARE SHOWN FOR REFERENCE PURPOSES. TENANT TO ROUTE CABLES TO NEAREST NOTED LOCATION AND AS COORDINATED WITH MAA DEPARTMENT OF AIRPORT TECHNOLOGY (DAT).
- SEE CAPACITY NARRATIVE FOR TENANT'S RESPONSIBILITY FOR SYSTEM CABLING OF ICT SYSTEMS.
- 3. SEE CAPACITY NARRATIVE REGARDING AVAILABILITY OF OTHER ICT AND SECURITY SYSTEMS.

## **Concession Category**

Food Service Convenience Retail Specialty Retail Vending





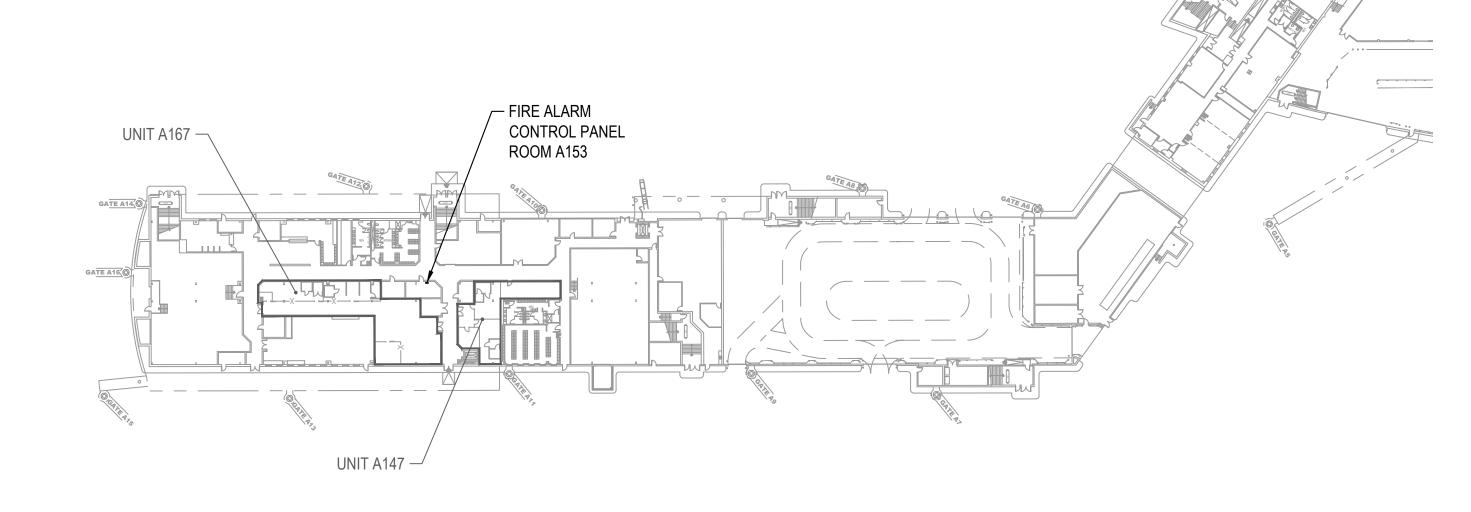




Key Plan: Airport

TECHNOLOGY SYSTEMS

# Concourse A - Ground Level (Level 1a)

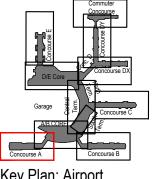




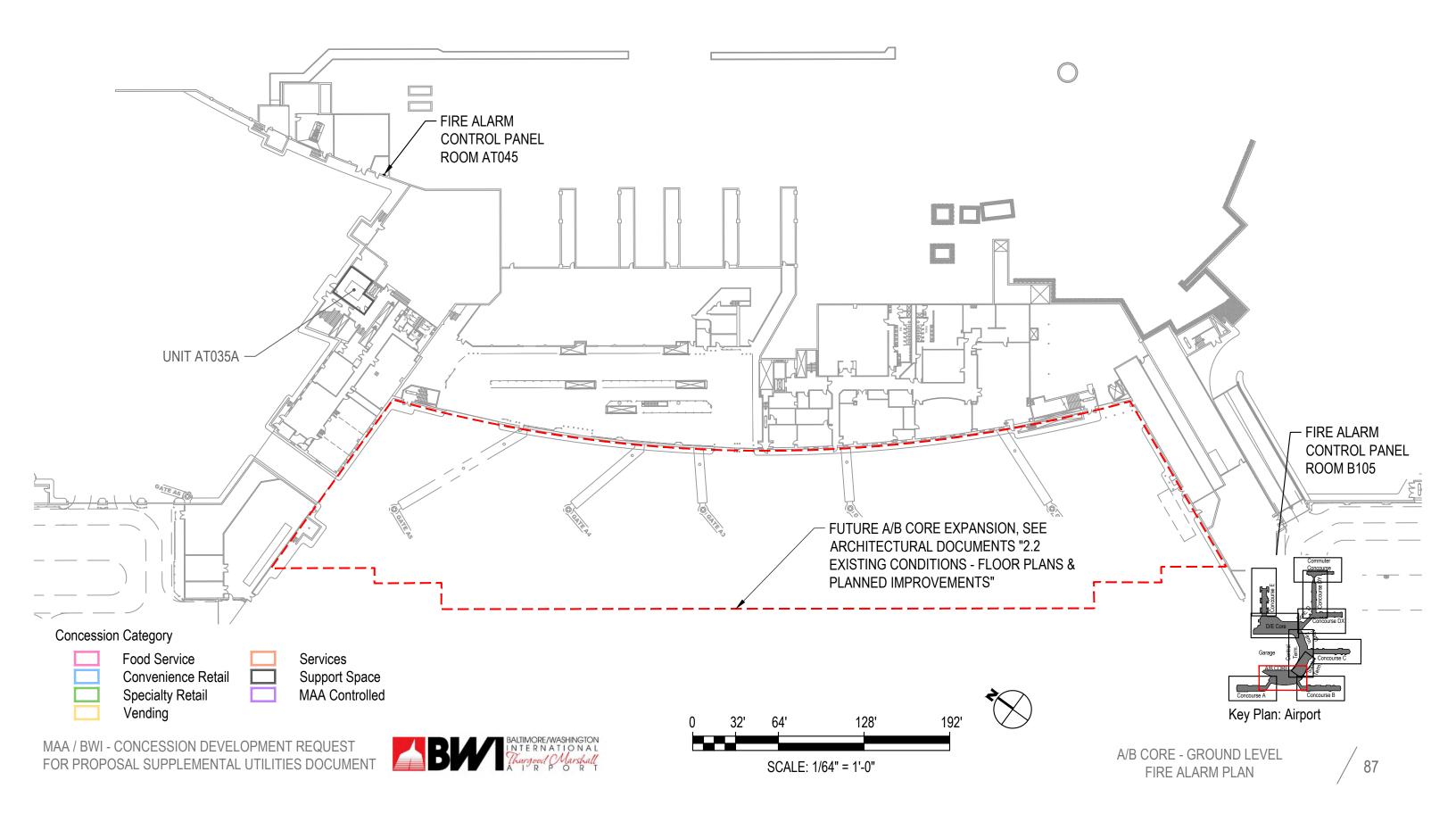


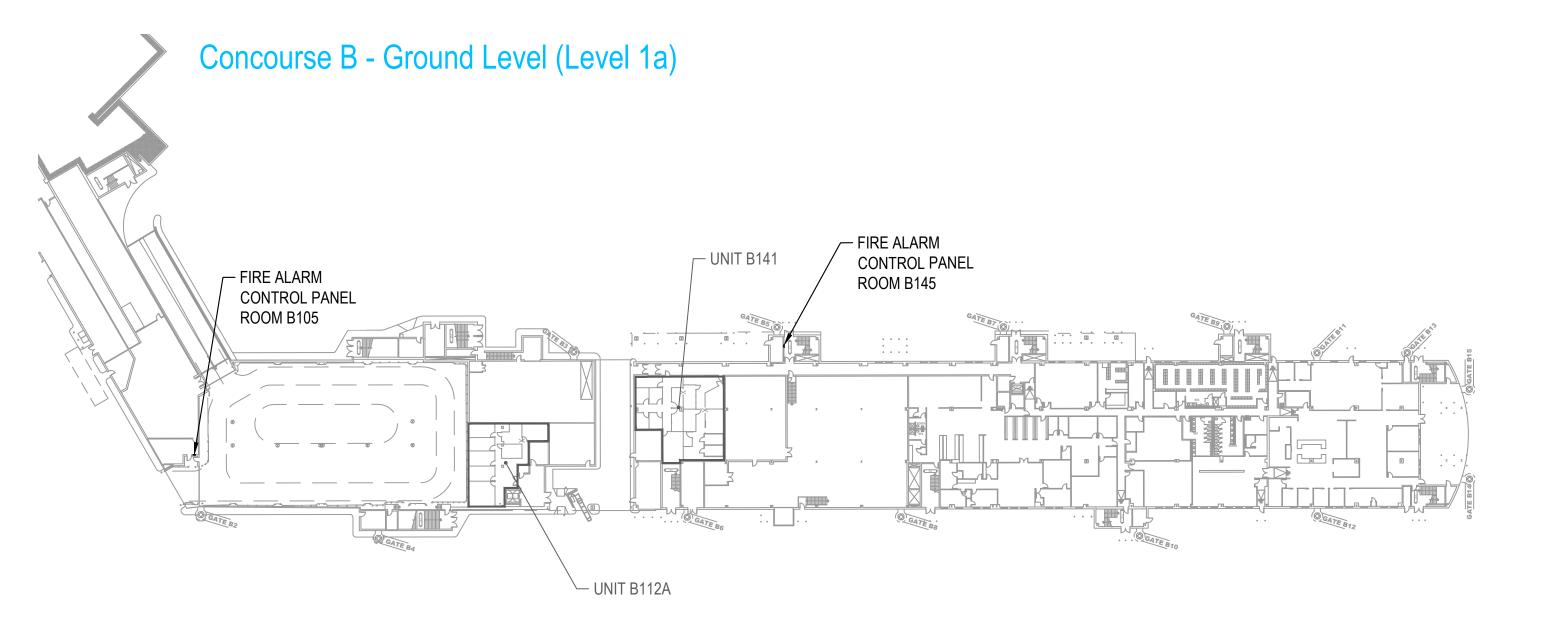
Services Support Space MAA Controlled



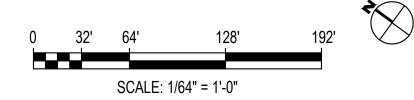


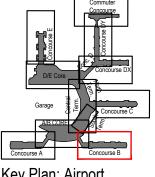
# A/B Core - Ground Level (Level 1a)

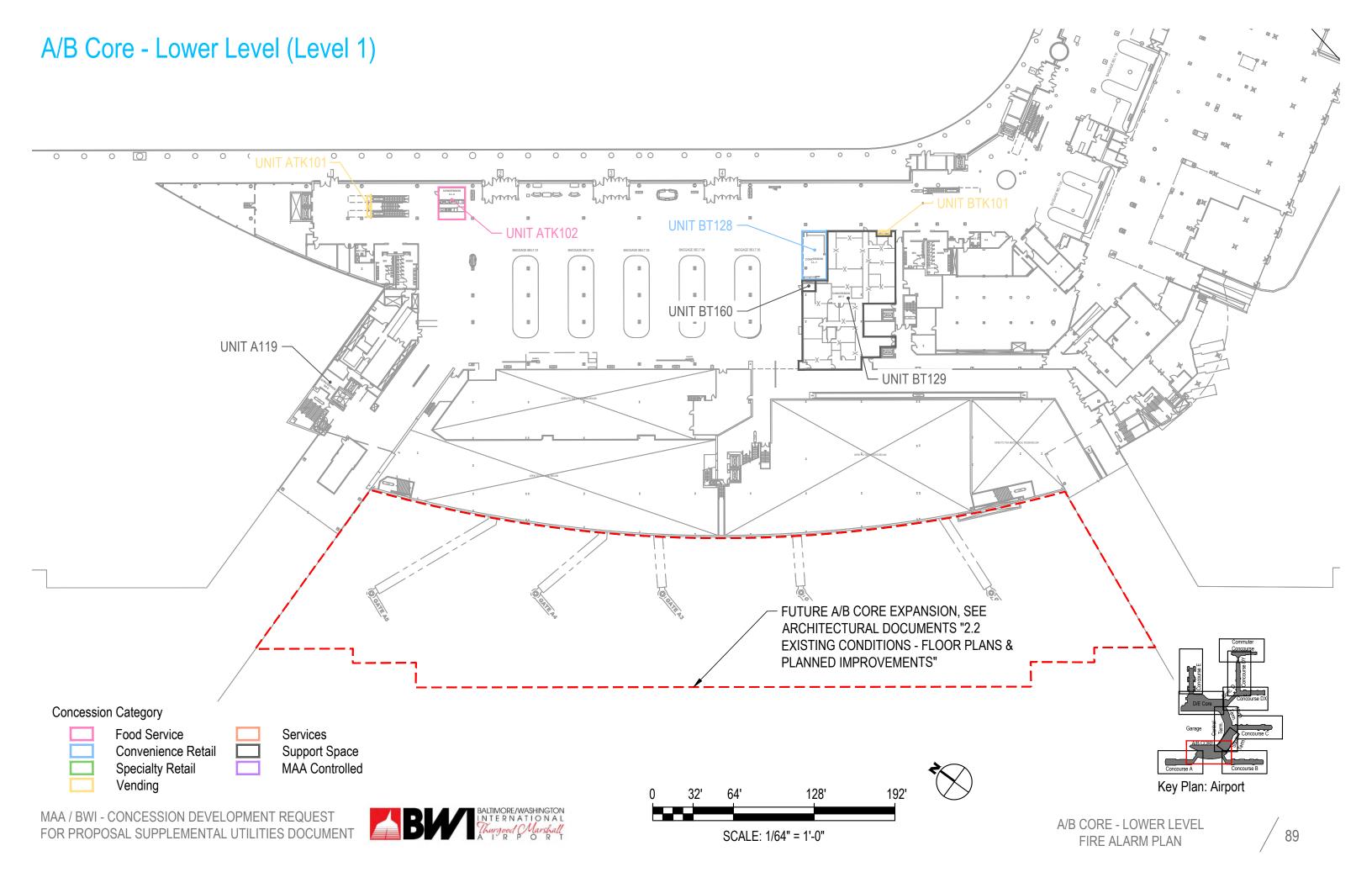


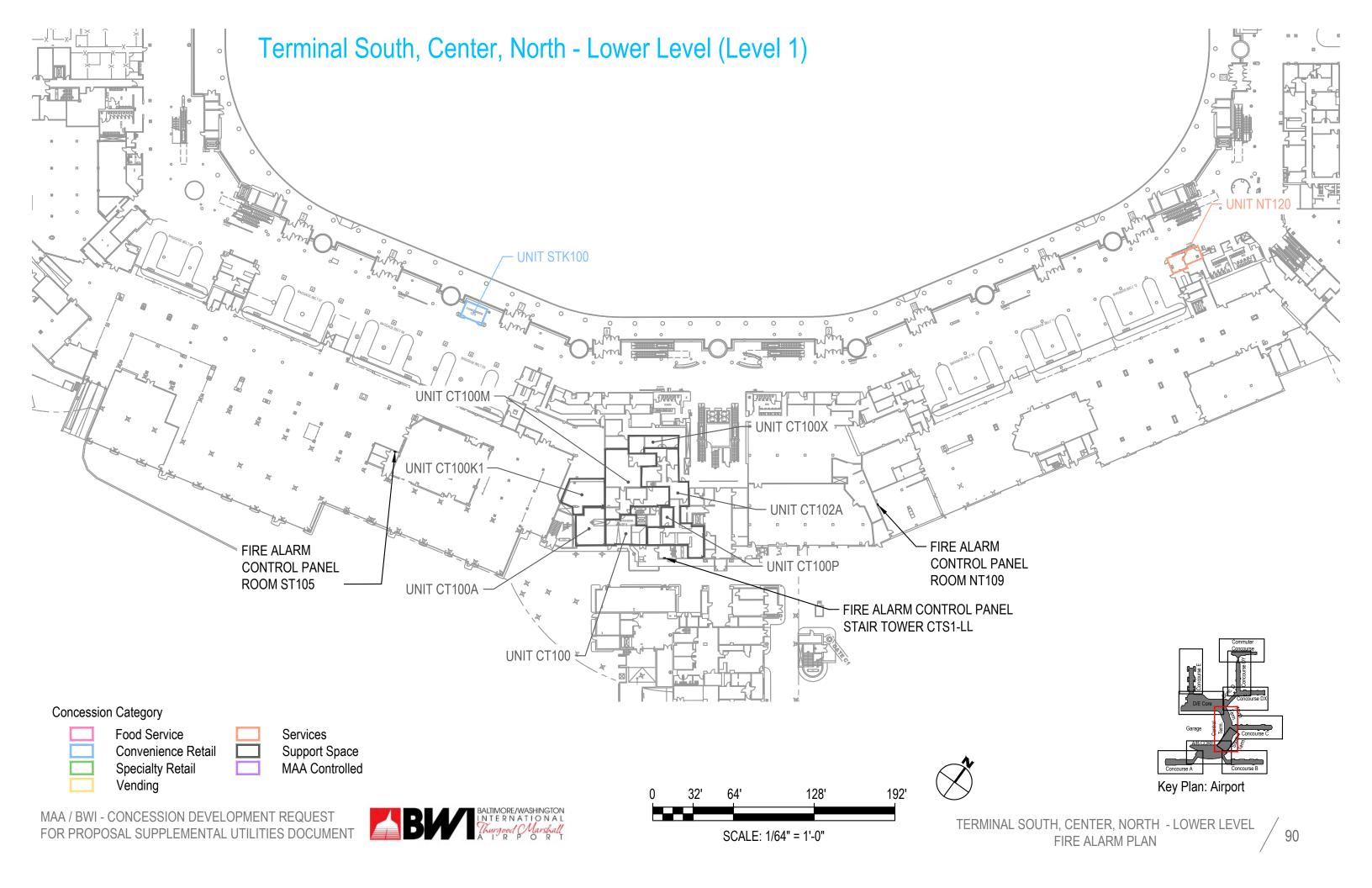




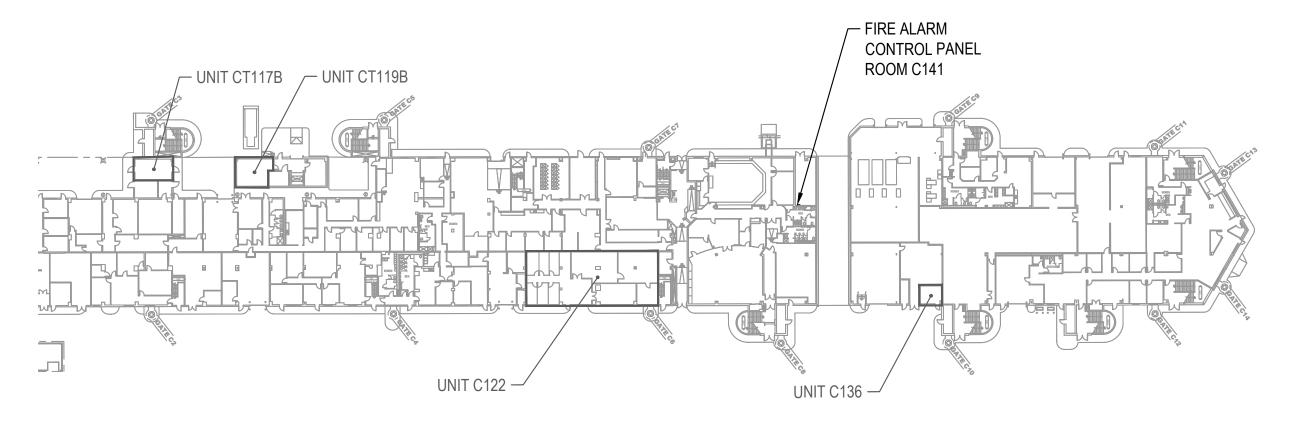








# Concourse C - Lower Level (Level 1)

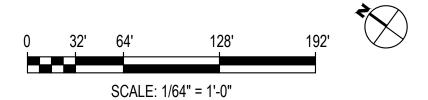


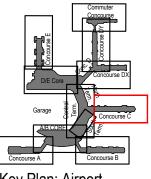


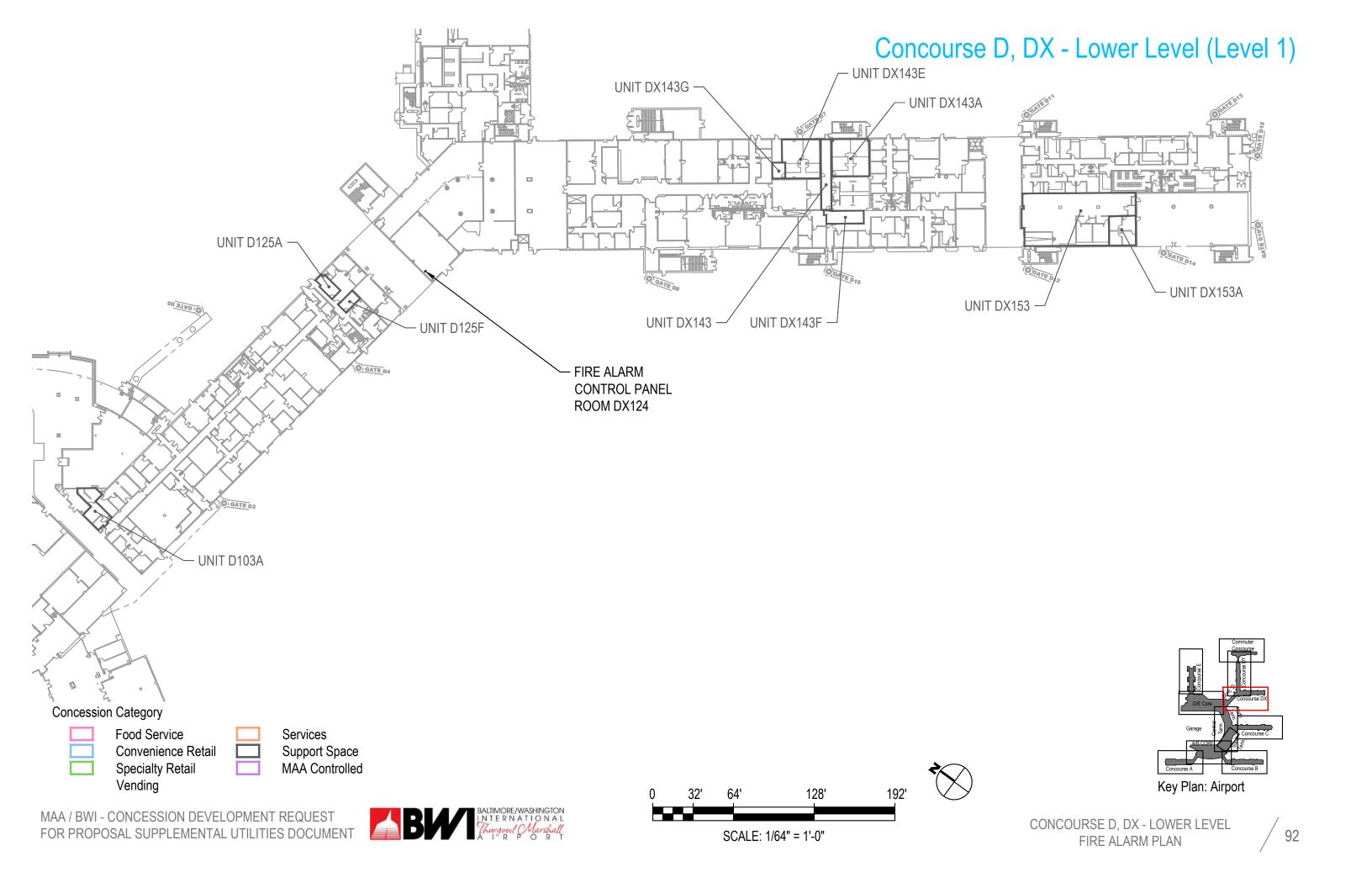


Services Support Space MAA Controlled

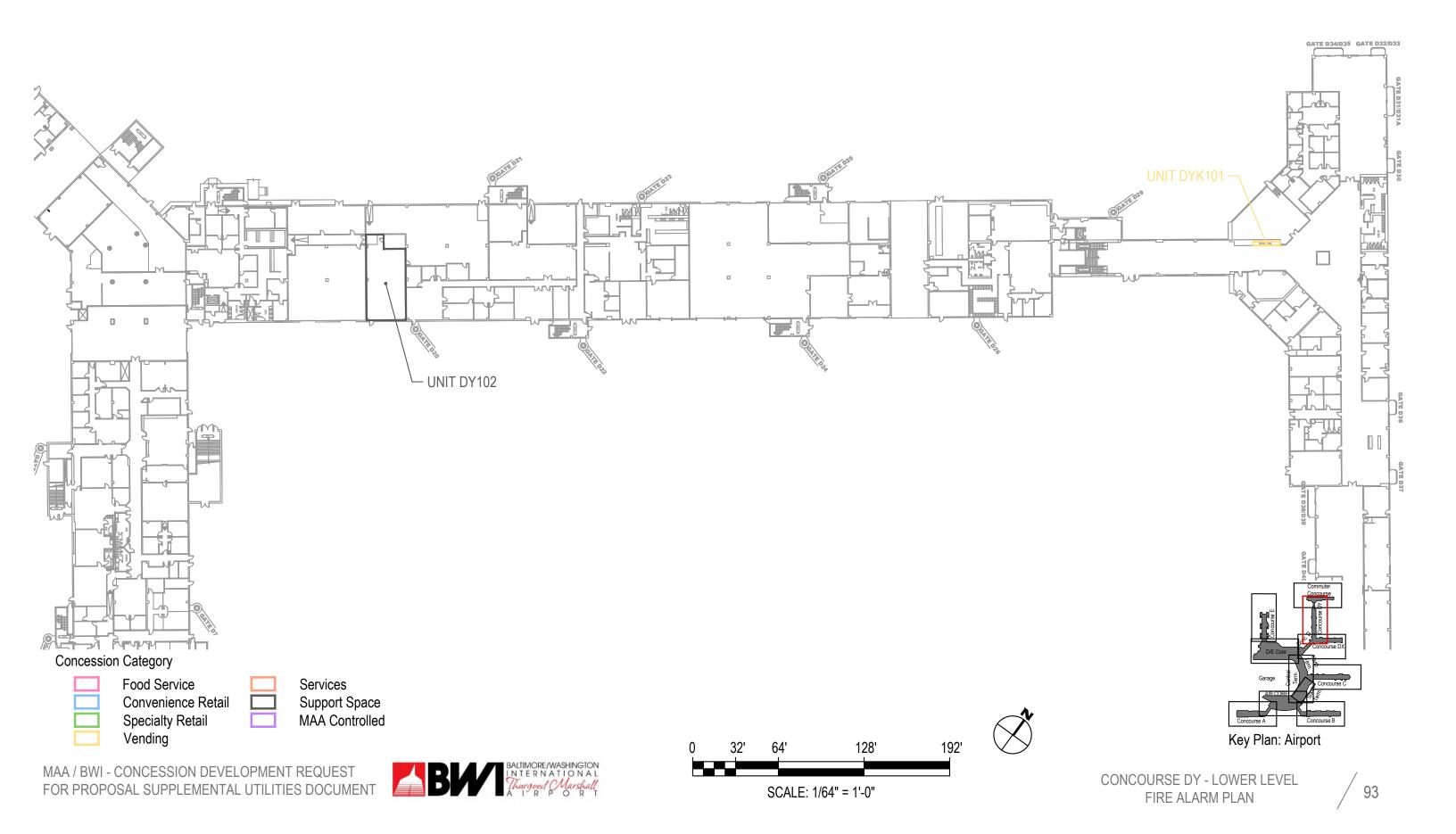




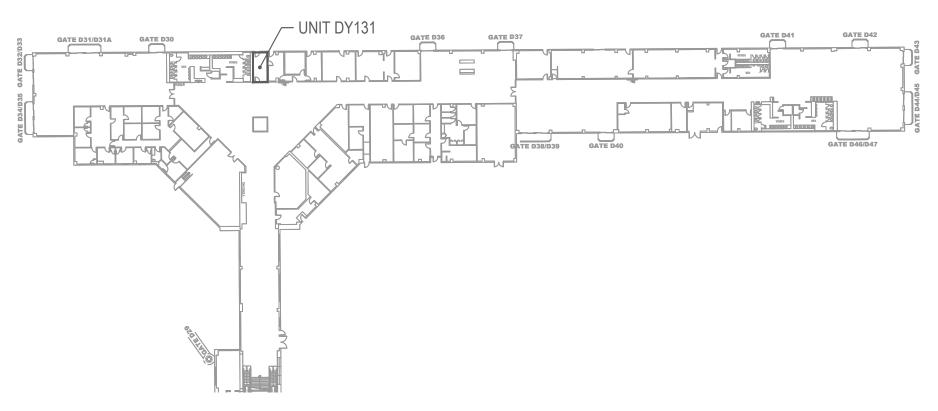




# Concourse DY - Lower Level (Level 1)



# Commuter Concourse D - Lower Level (Level 1)



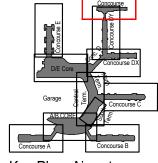
## Concession Category

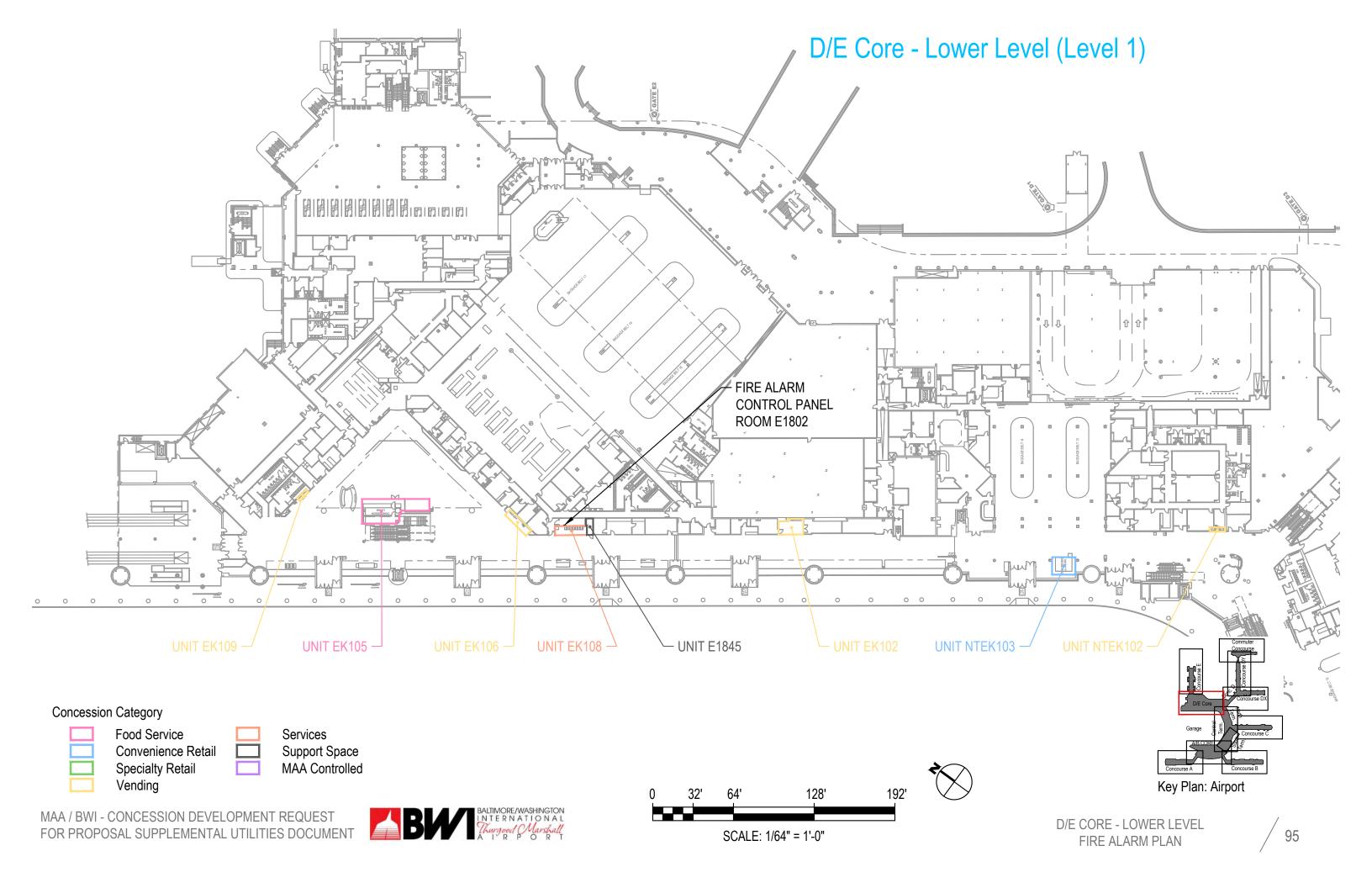


Services
Support Space
MAA Controlled

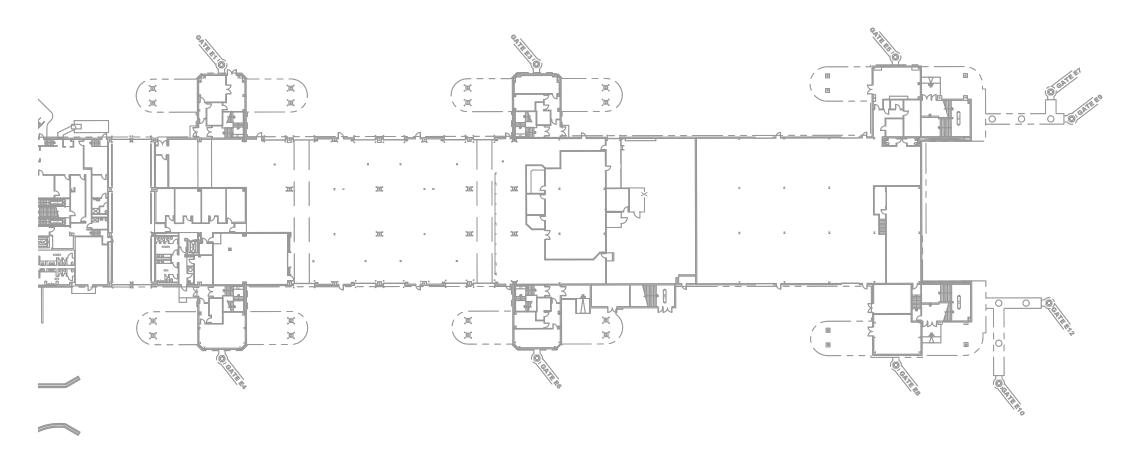




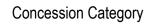




# Concourse E - Lower Level (Level 1)



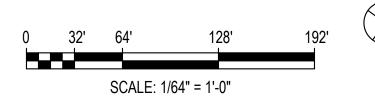
TE E2

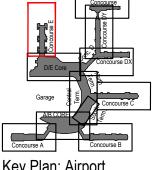




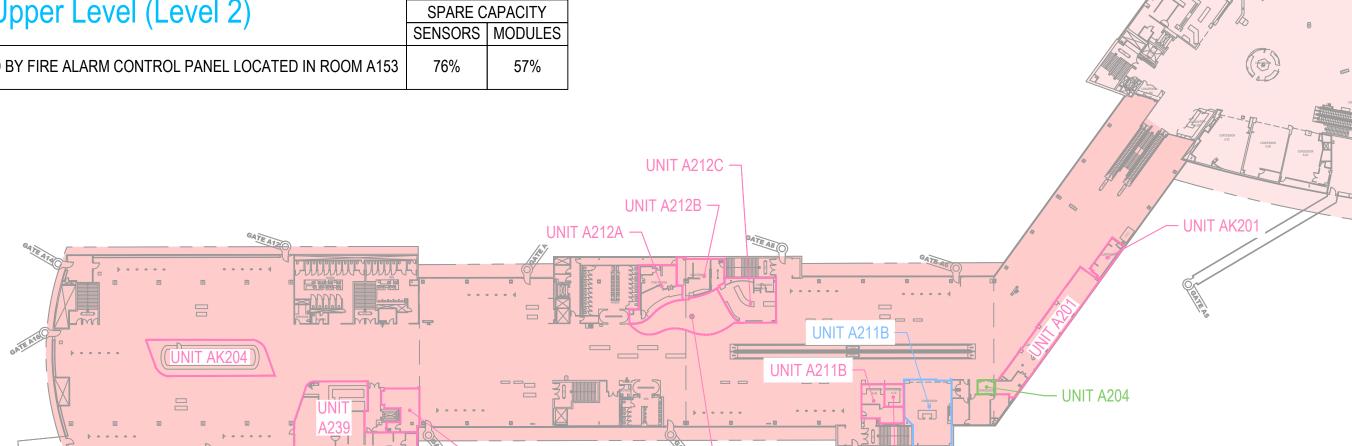
Services Support Space MAA Controlled











**─** UNIT A231

- UNIT AP206

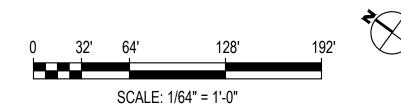
UNIT A211A

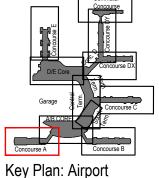
## NOTES:

- 1. REFER TO GROUND LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.

## **Concession Category**



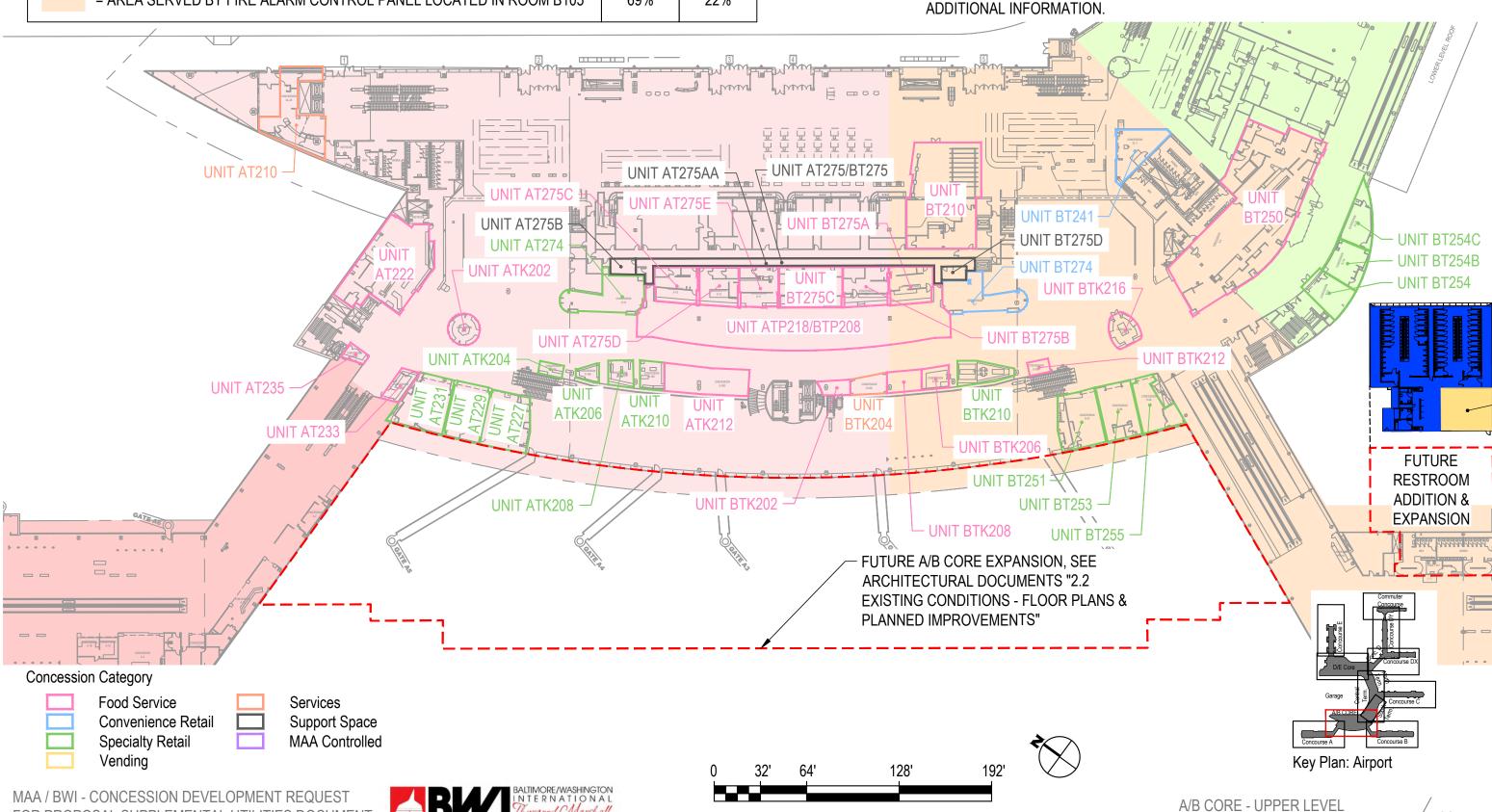


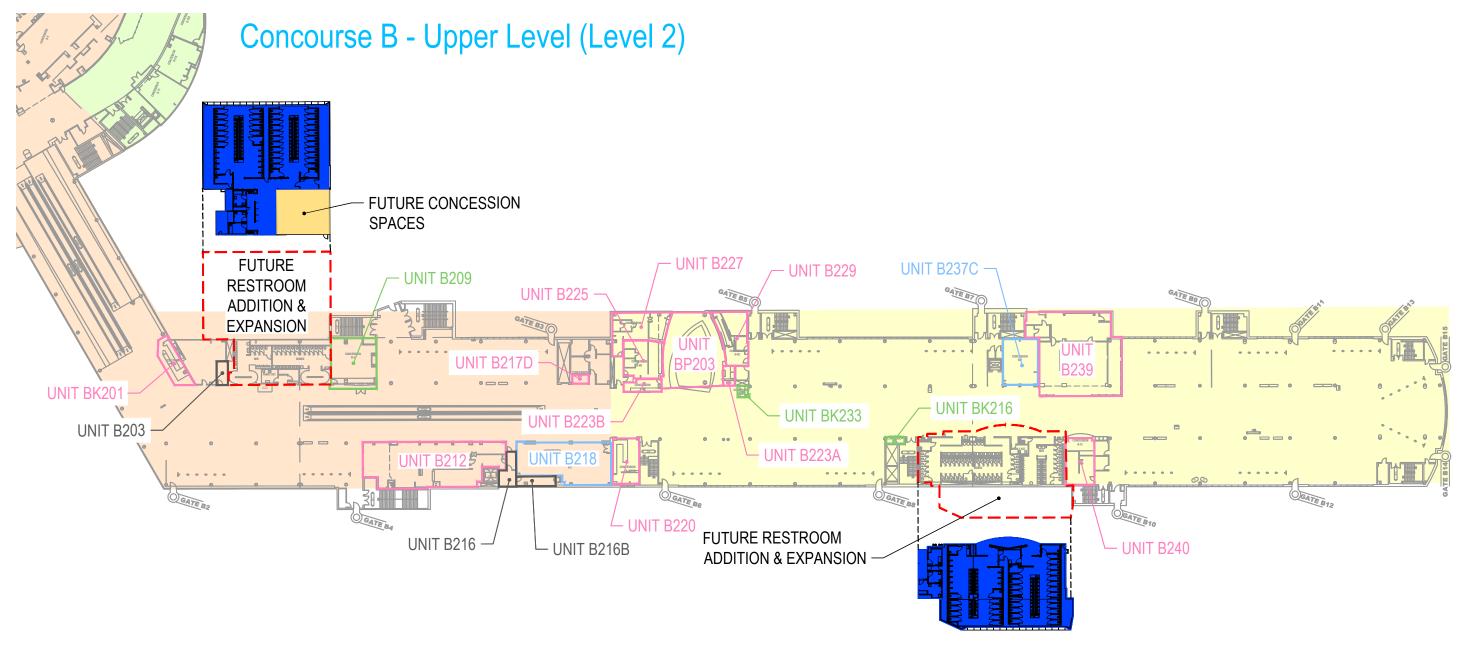


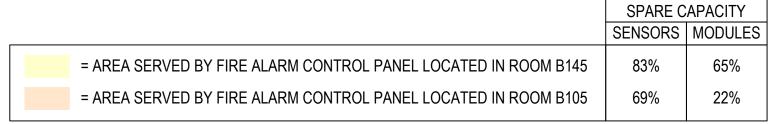
#### A/B Core - Upper Level (Level 2) SPARE CAPACITY SENSORS MODULES 68% 25% = AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM AT045 = AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM B105 69% 22%

#### NOTES:

- 1. REFER TO GROUND LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.







#### NOTES:

- 1. REFER TO GROUND LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.

# DIE Core Concourse DX AB CORP. AB CORP. CONCOURSE B.

Key Plan: Airport

## Concession Category

Food Service
Convenience Retail
Specialty Retail
Vending

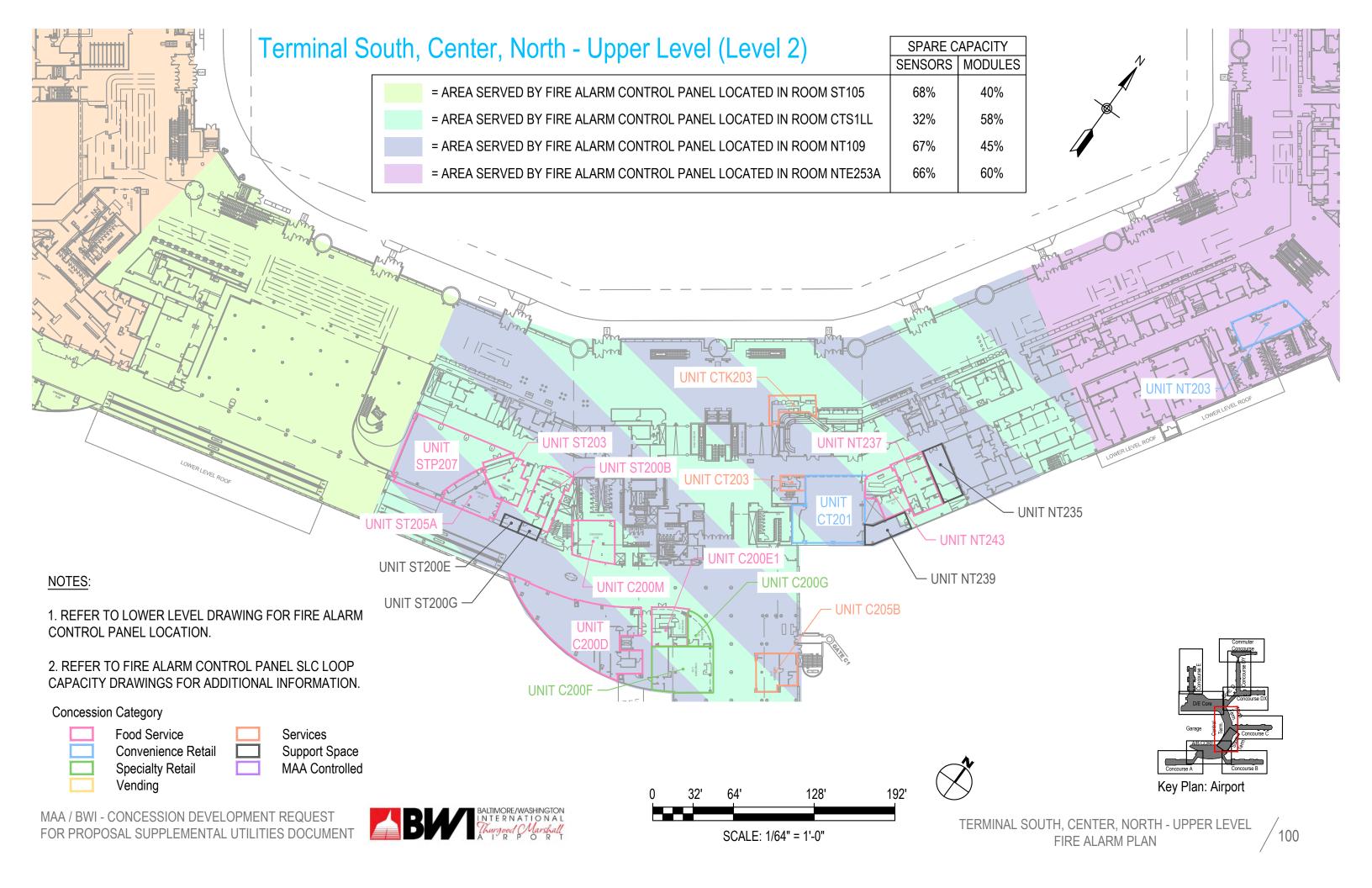
Services
Support Space

MAA Controlled

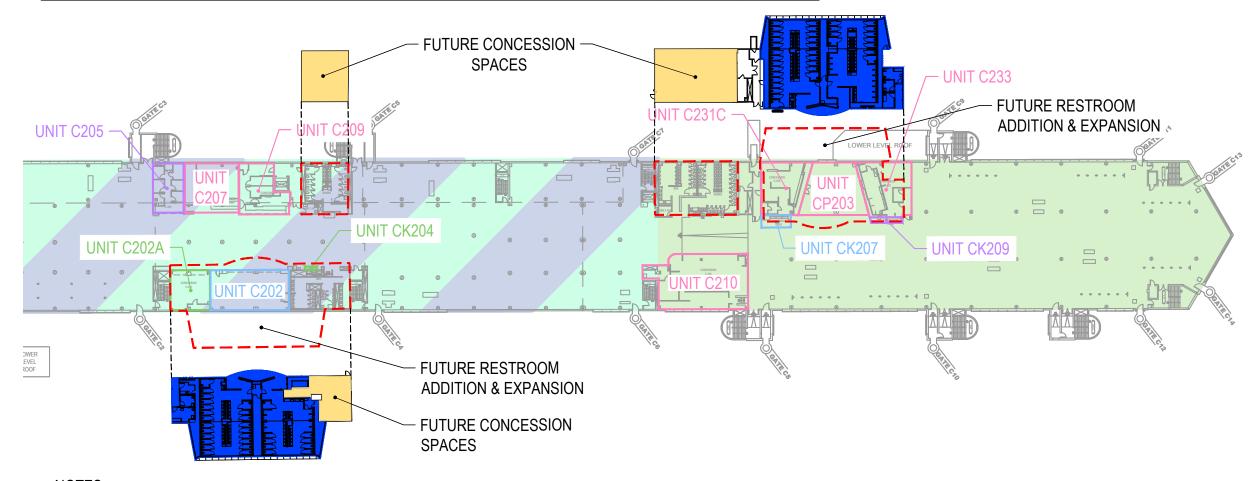
MAA / BWI - CONCESSION DEVELOPMENT REQUEST FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT







Concourse C - Upper Level (Level 2)	SPARE CAPACITY	
	SENSORS	MODULES
= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM CTS1LL	32%	58%
= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM NT109	67%	45%
= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM C141	66%	42%

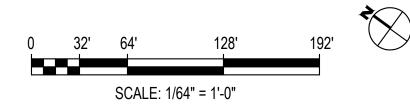


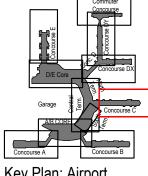
#### NOTES:

- 1. REFER TO LOWER LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.

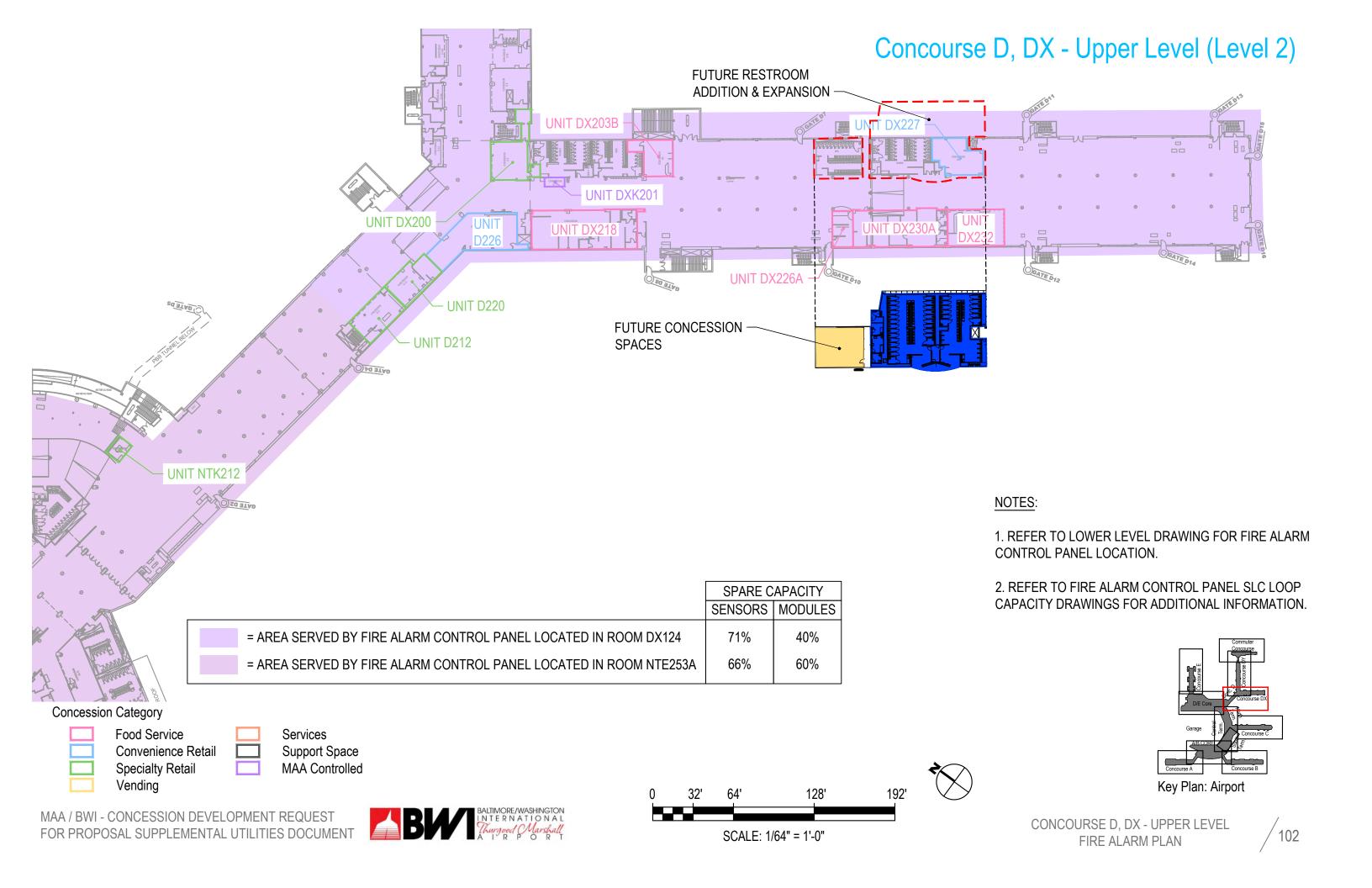
## **Concession Category**



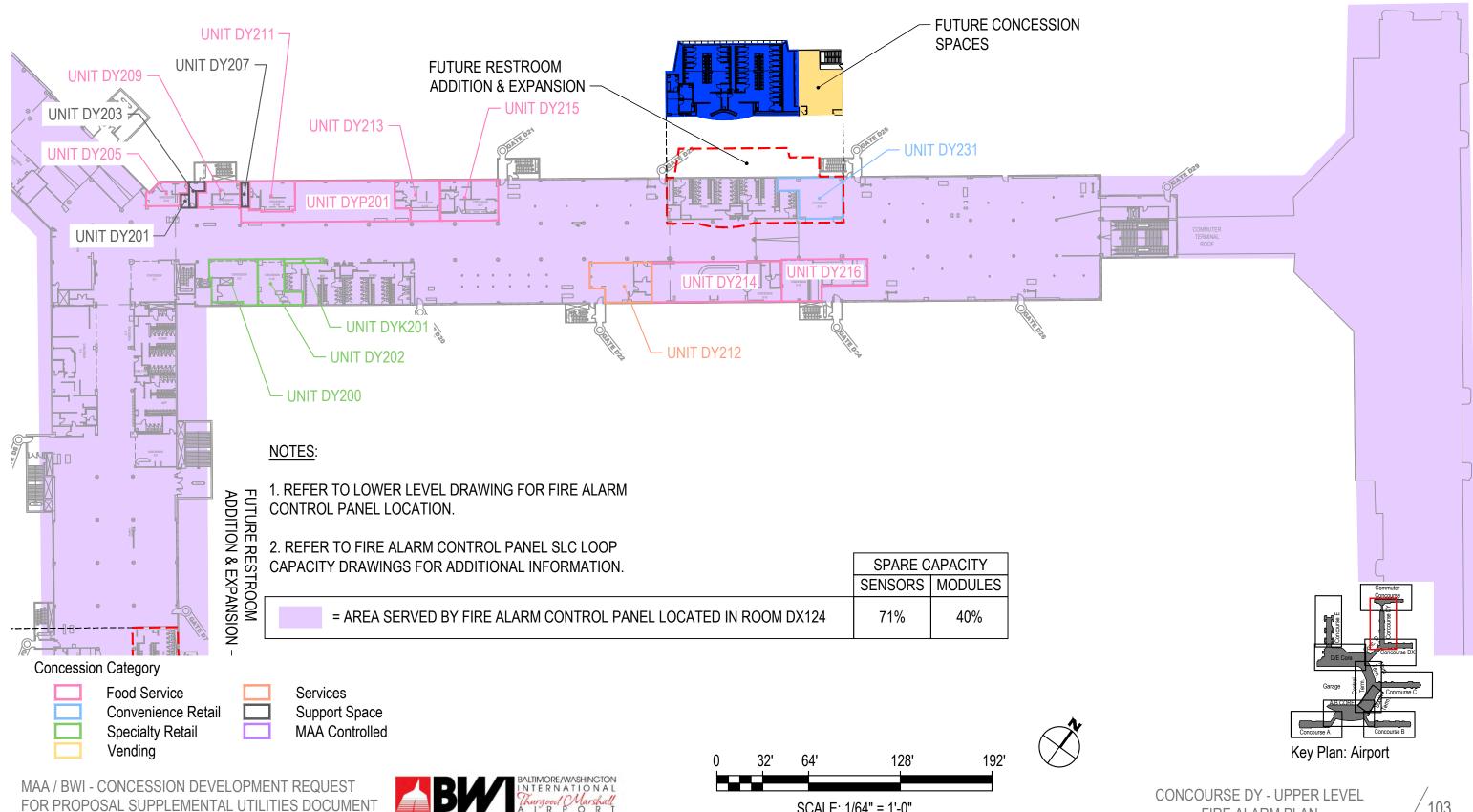




Key Plan: Airport



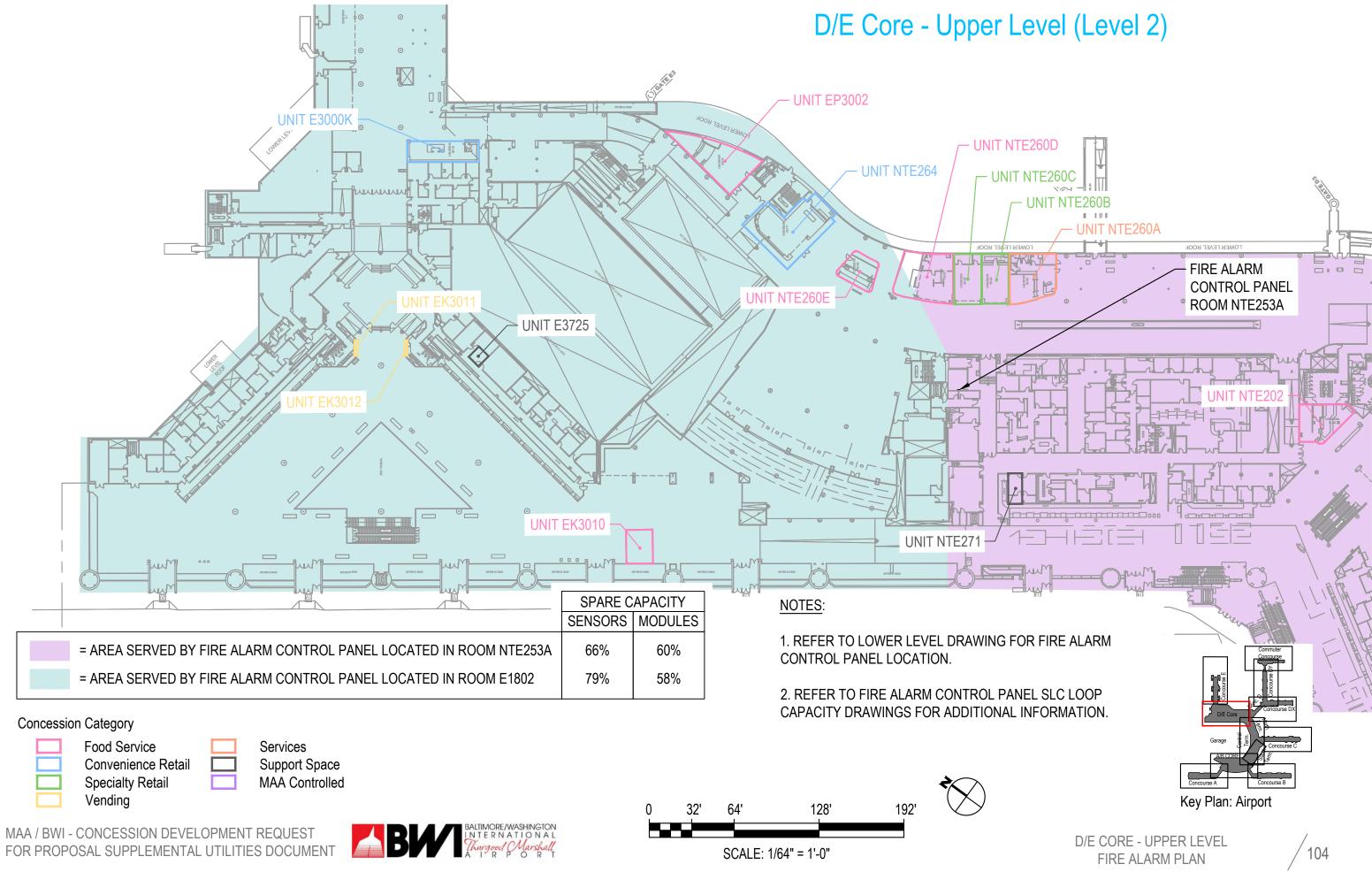
# Concourse DY - Upper Level (Level 2)





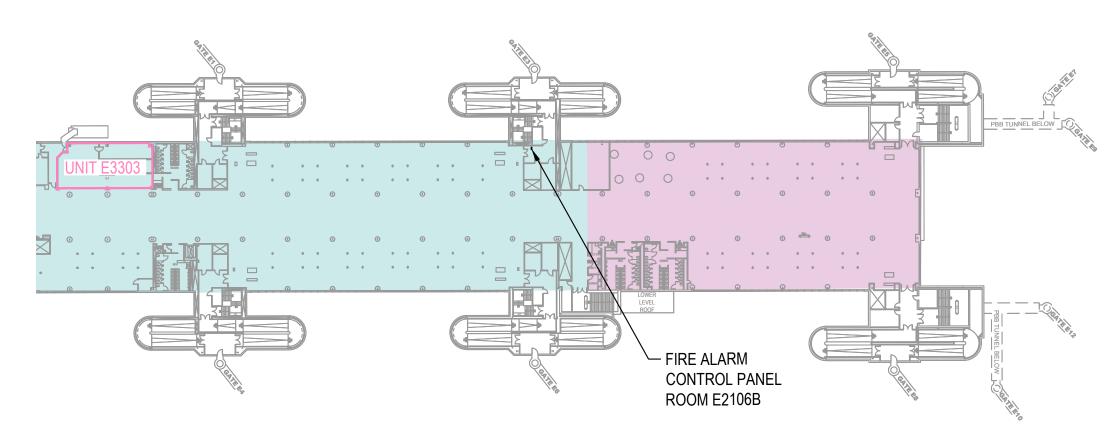


FIRE ALARM PLAN



FOR PROPOSAL SUPPLEMENTAL UTILITIES DOCUMENT

# Concourse E - Upper Level (Level 2)



		SPARE C	APACITY
_		SENSORS	MODULES
	= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM E2106A	81%	61%
	= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM E1802	79%	58%

#### NOTES:

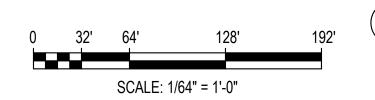
- 1. REFER TO LOWER LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.

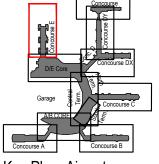
# Concession Category



Services
Support Space
MAA Controlled

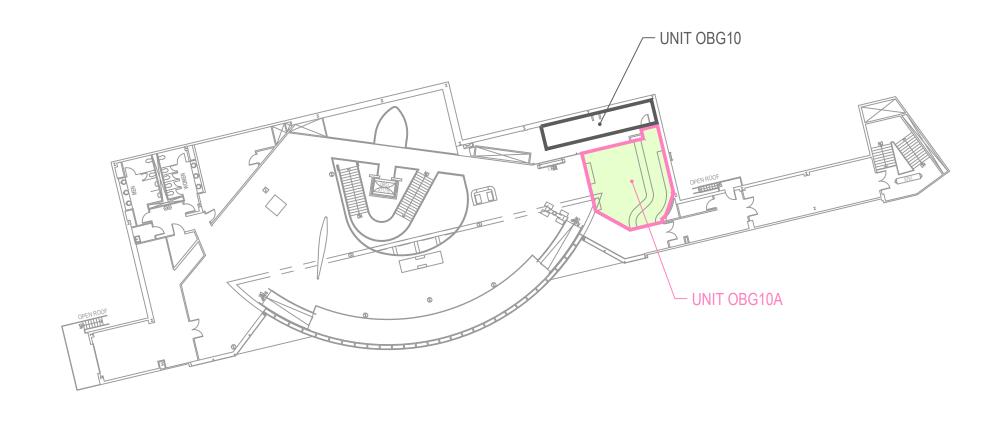






Key Plan: Airport

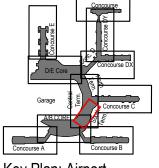
# Terminal Observation Gallery - Upper Level Mezzanine



SPARE CAPACITY SENSORS MODULES  = AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM ST105 68% 40%			
		SPARE C	APACITY
= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM ST105 68% 40%		SENSORS	MODULES
	= AREA SERVED BY FIRE ALARM CONTROL PANEL LOCATED IN ROOM ST105	68%	40%

## NOTES:

- 1. REFER TO LOWER LEVEL DRAWING FOR FIRE ALARM CONTROL PANEL LOCATION.
- 2. REFER TO FIRE ALARM CONTROL PANEL SLC LOOP CAPACITY DRAWINGS FOR ADDITIONAL INFORMATION.

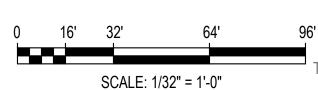


Key Plan: Airport



Vending

DPMENT REQUEST



Pier A FAP (XLS3000) Pier A \ Elect Rm-A153				
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	41	118	90	69
2	24	135	91	68
3	42	117	53	106
4	37	122	71	88
5	67	92	79	80
6	24	135	38	121
7	52	107	87	72
8	24	135	38	121
9				
	311	961	547	725
		76%	_	57%

	Terminal AB FA	P (XLS3000) Term A-B \ Pier A -	Fire Cmnd-A	Т045
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	41	118	90	69
2	24	135	91	68
3	42	117	53	106
4	37	122	71	88
5	67	92	79	80
6	24	135	38	121
7	52	107	87	72
8	24	135	38	121
9				
	311	961	547	725
		68%		25%

Pier B FAP (XLS1000) Pier B Lwr Lvl Electric Rm-B105				
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	29	70	77	22
2	32	67	78	21
3				
4				
5				
6				
7				
8				
9				
	61	137	155	43
		69%		22%

	Pier Bx FAP	(XLS1000) Pier Bx Lwr Lvl Fire	Cmnd Rm-B145	5
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	21	78	8	91
2	9	90	46	53
3	20	79	31	68
4	9	90	26	73
5	11	88	30	69
6	11	88	35	64
7	52	47	87	12
8	2	97	18	81
9				
	135	657	281	511
		83%		65%

SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	26	73	56	43
2	30	69	64	35
3				
4				
5	41	58	55	44
6				
7	43	56	81	18
8	20	79	41	58
9				

	FAA Twr FAF	(XLS1000) FAA Control Tower	Stair CTS1	-LL
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	67	32	42	57
2				
3				
4				
5				
6				
7				
8				
9				
	67	32	42	57
		32%		58%

	Pier C FAP ()	(LS1000) Pier C Lwr Lvl Fire - M	Mech Rm-C141	<i>C</i> 9
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	62	37	81	18
2	58	41	68	31
3	36	63	52	47
4	12	87	34	65
5	30	69	57	42
6	14	85	50	49
7	26	73	58	41
8				
9				
	238	455	400	293
		66%		42%

MAA\OPS	FAP (XLS1000) MAA-OPS Lvl 3 Ele	ect Rm-333	
Sensors in Use	Sensor addresses available	Modules	Modules Available
10	89	14	85
11	88	7	92
21	177	21	177
	89%		89%
	Sensors in Use  10 11	Sensors in Use  Sensor addresses available  10 89 11 88  21 177	10     89     14       11     88     7

SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available
1	19	80	56	43
2	35	64	54	45
3	31	68	48	51
4	58	41	80	19
5				
6	19	80	35	64
7				
8				
9				

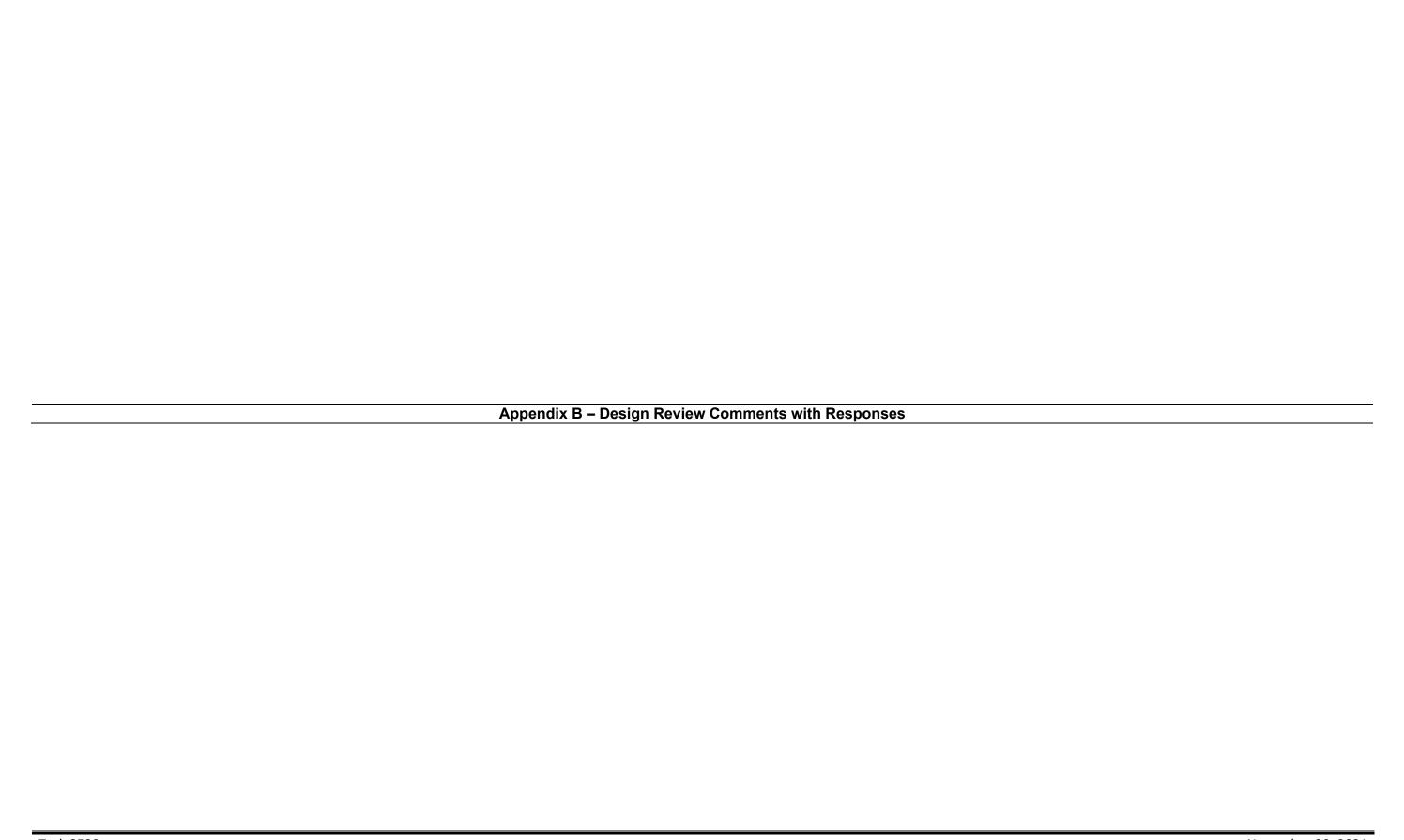
	Pier D,Dy & Dx FAP (XLS1000) Pier Dx Lwr Lvl Elect. Sub-Dx124							
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available				
1	22	77	34	65				
2	32	67	47	52				
3	55	44	56	43				
4	13	86	48	51				
5	16	83	61	38				
6	23	76	72	27				
7	41	58	99	0				
8								
9								
	202	491	417	276				
		71%		40%				

	NTE FAP (XLS1000) NTE Lwr Lvl Fire Cmnd Rm-NTE253A					
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available		
1	53	46	47	52		
2	57	42	51	48		
3	15	84	47	52		
4	10	89	7	92		
5	32	67	43	56		
6	59	40	53	46		
7	10	89	26	73		
8						
9						
	236	457	274	419		
		66%		60%		

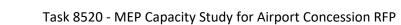
Pier E FAP (XLS1000) Pier E Lwr Lvl Fire Cmnd Rm-E1802						
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available		
1	12	87	53	46		
2	7	92	51	48		
3	36	63	69	30		
4	0	99	8	91		
5	30	69	70	29		
6	76	23	52	47		
7	19	80	54	45		
8	2	97	8	91		
9	6	93	9	90		
•	188	703	374	517		
		79%		58%		

	Pier Ex FAP (XLS1000) Pier E Sterile Corr Fire Cmnd Rm-E2106A						
SLC Loop	Sensors in Use	Sensor addresses available	Modules	Modules Available			
1							
2							
3							
4							
5							
6	17	82	45	42			
7	29	70	57	72			
8	15	84	27	57			
9	14	85	42	99			
	75	321	171	270			
		81%		61%			





Task 8520
MEP Capacity Study for Airport Concessions at BWI Marshall Airport



**Draft-Fina**l 10/29/2021 submittal / phase submittal date TD/SKhatri

JMT

WC-will comply, DE-designer to evaluate, DC-delete comment Designer of Record project manager

No.	Drawing and/or Section No.	Comments	RCA	sc	Discipline	Designer Comments	Back check
1	( Jeneral	Change the name of the report to MEP Capacity Study for Airport Concessions at BWI Marshall Airport		Design Review Meeting		Will comply.	
2	Executive Summary - Part A.	The first paragraph should read as follows: This Study Report provides an overview of the available capacity of the mechanical, plumbing, electrical, information technology and security, and fire protection systems that are currently available at the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall Airport or Airport) to support the concession program. This information will provide an understanding of the building services that are available to support future concession development.		MW		Will comply.	
3		Add the word "provide" to the first sentence of the second paragraph, between "and" and "a".		MW		Will comply.	
4	Executive Summary - Part B.	The third paragraph should read as follows: The study is based on a review of existing plans, site walk-thrus, coordination with the Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA), review of existing metering data and HVAC control system data, and analysis to calculate available spare capacity.		MW		Will comply.	
5	Executive Summary - Part B.	Delete the bullet list after the third paragraph.		MW		Will comply.	
6	Study Report - Part A.	Delete the first paragraph.		MW		Will comply.	
7	Study Report - Part A.	The second paragraph should read as follows: To support the development and implementation of future concession program master plans at BWI Marshall Airport, this study documents at a high level, the capacity available in the mechanical, plumbing, electrical, information technology and security, and fire protection systems at the BWI Marshall Airport Main Terminal and the connecting Concourses A, B, C, D and E to support the concessionaires.		MW		Will comply.	
8	Study Report - Part C.	Add existing gas distribution system pressure to the narrative.		Design Review Meeting		Will comply.	
9	Study Report - Part C.	Coordinate plumbing narrative with Peter Charles.		Design Review Meeting		Will comply.	

Page 1 of 2

contract number

No.	Drawing and/or Section No.	Comments	RCA	SC	Discipline	Designer Comments	Back check
10		Modify report to clarify relationship between Smart City and utility providers like Comcast.		Design Review Meeting		Will comply.	
11	Study Report - Part E.	If concessionaire makes changes that affect Airport Security then the changes must be coordinated with MAA securityfor example, card readers connected to MAA System vs tenant owned card access.		Design Review Meeting		Will comply.	
12	A/B Core Exhibits	Add notes to the MEP/IT plans refering back to arch plans for changes to the AB expansion. Area should be clouded, use similar approach and color scheme as restroom (red dash)		Design Review Meeting		Will comply.	
13	IMECHANICAL EXHIBIIS	If the VAV capacity is changed, AHU and VAVs must be balanced.		Design Review Meeting		Will comply.	
14	A/B Core Lower Level Technology Systems	Sheet 68 - Telecom AT109 mislabeled.		Design Review Meeting		Will comply.	

Page 2 of 2 11/30/2021

#### Task 8520 - MEP Capacity Study for Airport Concession RFP

**Draft** submittal / phase

9/10/2021

submittal date

**JMT**Designer of Record

WC-will comply, DE-designer to evaluate, DC-delete comment

TD/SKhatri
project manager

contract number

No.	Drawing and/or Section No.	Comments	RCA	SC	Discipline	Designer Comments  Back check
1	Throughout Document	All references to MAA should be changed to MDOT MAA		MW		Will comply.
2	Throughout Document	All references to BWI should be changed to BWI Marshall Airport or Airport		MW		Will comply.
3	I	The Executive Summary should be completely revised and restated. The existing content is duplicate to Section II - Study Report		MW		We have maintained the introduction and the approach in the executive summary and added a summary for each of the systems under a "Summary of Findings" paragraph.
4	II.A	The first Paragraph should read as follows: The Maryland Department of Transportation Maryland Aviation Administration (MDOT MAA) is preparing to issue an RFP for a concession developer at Baltimore/Washington International Turgood Marshall Airport (BWI Marshall Airport or Airport). This Study Report provides an overview of the available capacity of the mechanical, electrical, plumbing, fire protection and information technology services that are currently available at the Airport to support the concession program. This information will provide proponents with an accurate understanding of the building services that are available to support future concession development.		MW		Will comply.
5	II.F.3.b	Concourse A/B Core should read A/B Core		MW		Will comply.
6	II.F.3.h	DE Connector should read D/E Core		MW		Will comply.
7	Entire Document	Change the orientation of the report to landscape		MW		Will comply.
8	Appendix A - Exhibits	Concession Unit Numbers are incorrect, please reference the attached exhibit (produced by William Garmer) for the correct concession unit numbers		MW		Will comply.
9	Appendix A - Exhibits	Ensure the consist use of color indicators for concession type. Colors used must be the same as the attached exhibit produced by William Garmer.		MW		Will comply.
10	Appendix A - Exhibits	The Location Plan must be modified to change Concourse A/B to A/B Core and DE Concourse to D/E Core		MW		Will comply.
11	II.F	All ICT services to conceesionaires should be provided by SmartCity. Please review with MDOT MAA IT or OCM		MW		Will comply.

Page 1 of 1 11/30/2021

## IV. DESIGN REPORT GENERAL INFORMATION

Date	November 30, 2021					
Report Phase	$\square$ Draft $\square$ Draft-Final $\boxtimes$ Final					
Airport	☑ BWI Marshall ☐ Martin State					
A/E Contract Number	MAA-AE-18-010					
A/E Task/Subtask Number	8520					
A/E Task/Subtask Title	MEP Capacity Study for Airport Concession RFP					
Construction Contract Number	N/A					
Construction Contract Title	N/A					
Construction Task Number	N/A					
Construction Task Title	N/A					
CONS	CONSULTANT'S CONTACT INFORMATION					
Prime Consultant	Michael Baker International					
Subconsultants	Schiller and Hersh, Ross & Baruzzini					
Consultant's Project Manager	Tracy Hollida					
Consultant's Task Manager	Sunil Khatri					
Task Manager's Phone Number	410-689-3431					
Task Manager's Email Address	Sunil.Khatri@mbakerintl.com					

## **Consultant Sign-off**

Consultant signatures below certify that Consultant has reviewed the documents for completeness and coordination per MDOT MAA Design Standards and project requirements and attests to their review of said documents as submitted to MDOT MAA.

Position	Name	Signature	Consultant Name
Task/ Project Manager	Sunil Khatri	Sid Chita	Michael Baker
QA/QC Manager	Donna Kolb	DSKell	Michael Baker

Professional Certification:  "I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND"
License Number:
Expiration Date:

Task 8520 November 30, 2021